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McMASTER UNIVERSITY



A SUBMISSION  
TO THE  
COMMITTEE  
ON  
UNIVERSITY AFFAIRS

November 1970



This submission has been prepared in response to the Agenda proposed by the Committee on University Affairs for its meeting with McMaster University on November 9th, 1970.

Thus the material has been organized under the headings which the Committee devised and all documents, including the forms, have been assembled in the numerical sequence suggested.





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## REVIEW OF CURRENT PROGRAMS

1(a)i

### Undergraduate Level

Co-operative efforts -- Joint program offerings  
Student/faculty exchanges  
Shared facilities

The Department of Religion is associated with a 'discipline group' in Religion and Near Eastern Studies established with approval of CPUO and the objective is to minimize duplication of programs in Religion departments. The School of Social Work is actively associated with the Continuing Conference on Education and Training for the Social Services of Ontario on matters of coordination of programs, standards, development of basic resources, e.g., field instruction centres. McMaster, Queen's, University of Western Ontario, and Toronto have approved Latin (Classical) Summer Institutes on a cyclical basis.

The Faculty of Science has arranged an exchange with Brock University of lecturers in Year IV Biophysics classes. McMaster students have also taken senior Geology classes at the University of Toronto. The Faculty of Science has appointed, as part-time faculty or as research associates, persons from industrial and government laboratories including: Royal Botanical Gardens, (Biology), Canada Centre for Inland Waters (Geology), Atomic Energy of Canada Limited (Physics), Canadian Defence Research Laboratories (Psychology), and Canadian Westinghouse Limited.

The Faculty of Engineering has set up an exchange system with Mohawk College of Applied Arts and Technology in several areas. In the Department of Civil Engineering and Engineering Mechanics a class in Surveying is taught at Mohawk College by an instructor from that College. McMaster University students utilize the summer drafting course at Mohawk College for credit toward their degree. Students from Mohawk College are offered laboratory demonstrations in the McMaster University Department of Mechanical Engineering in areas of thermofluid sciences. McMaster Mechanical Engineering students are admitted to demonstrations of machine tools at Mohawk College.





The Faculty of Engineering has also enlisted the services of part-time lecturers from the University of Waterloo in the Department of Civil Engineering and Engineering Mechanics and the practice will be repeated in 1970-71. A lecturer from the McMaster Department of Chemical Engineering has been teaching on a part-time basis at the University of Waterloo.

In the Division of Health Sciences two programs of inter-institutional co-operation have been formulated. First, a joint venture involving Mohawk College of Applied Arts and Technology, McMaster University and the Hamilton Health Association has as its purpose the pooling of the special resources of the three institutions as a base for launching diploma training programs for physiotherapists, radiographers, laboratory technologists and other health personnel. Secondly, the Faculty has projected an advanced level program at McMaster to provide more specialized education for a small proportion of the Mohawk College graduates who are preparing themselves for careers in teaching, research, and other leadership roles in their professions.





1(a)ii

Graduate Level

Co-operative efforts -- Joint program offerings  
Student/faculty exchanges  
Shared facilities

There are a number of different levels on which one can discuss the co-ordination of program offerings with other universities in the graduate area. On one end of the scale there may be a tacit agreement not to duplicate a major area of study already under way at some other university and, at the other extreme, there may be a full blown joint program such as that proposed in philosophy between McMaster and Guelph. We shall list a number of these steps towards rationalization which McMaster has taken.

Most of our departments which offer the Ph.D. now have well defined areas of specialization. A department would not undertake to move into a new area without careful consideration of all factors involved, including the offerings at other universities, and including an appraisal if a new field were sufficiently distinct that the Appraisal Committee felt an appraisal to be desirable. The clearest indication of this perhaps is found in the Department of Classics where the title of the Ph.D. is in fact Ph.D. in Roman Studies. The decision not to do doctoral work in Greek at the present time was based on the knowledge of the offerings elsewhere in the Province and in Canada.

An important form of co-operation is in the joint use of facilities. The McMaster reactor and the Van de Graaf accelerator have been made available for use by professors and their students at other universities. They have been, and are being, extensively used by people from Toronto and from Guelph.

Another form of co-operation is to make joint appointments of professors. The McMaster Chemistry Department includes two part-time professors who are staff members of Brock University. Both of these scientists supervise McMaster Ph.D. students and, during the last year, one of them gave a graduate course which was taken by students from both universities.



Much progress has been made in the development of joint courses and joint programs. The Geology Departments at Toronto and McMaster offer a course which is taught alternately at the two locations.

The graduate course in virology at McMaster is given jointly by members of the University's Department of Biology, and by members of the Department of Medical Biophysics at the University of Toronto.

The Department of Mathematics has encouraged the development of an understanding with other provincial departments to enable graduate students at one university to take courses at other universities for degree credit. The Biophysics group in the Departments of Biology and Physics at McMaster is discussing with Brock University the feasibility of developing a joint graduate program in an area where there is complementary expertise.

The Department of Applied Mathematics anticipates that it may draw upon expertise at nearby universities to provide required course work in Computer Science when graduate study is initiated in that subject.

The Philosophy Departments of McMaster, Guelph and Waterloo offered a joint course in the Philosophy of Science. In addition, McMaster students have taken for graduate credit, Philosophy courses offered at Toronto and Guelph. Guelph and McMaster have just submitted for appraisal a proposed Ph.D. program in Philosophy in which the resources of the two Philosophy Departments have been brought together. Essentially there will be one Department of Philosophy operating this program of study and it will be a matter of indifference to the student whether he is taking a course in Hamilton or in Guelph and whether his principal supervisor is at Guelph or McMaster. The library holdings in Philosophy in the two universities will be complementary. Staff growth in one department will involve discussion with the other department; graduate instructors must be acceptable to the joint department.

Steps have been taken by the chairmen of Political Science Departments in this district to encourage course interchange at the graduate level.

McMaster University is involved in a joint research program in Latin American Studies with Western, Guelph, Waterloo and Queen's.





There has been discussion with neighbouring engineering departments concerning a joint research program in Water Resources which would draw, in part, on the facilities of the Canadian Centre for Inland Waters. In 1970-71, our Civil Engineering graduate students will be taking classes in Water Resources at the University of Guelph.

In Engineering also, faculty members from the University of Waterloo and McMaster are involved in graduate classes and research discussions at both institutions.

It is expected that discussions between the Departments of Electrical Engineering at University of Toronto and McMaster will lead to the development of extended graduate course offerings using lecturers from each institution to cover specialized areas not currently available at one or other institution.

Our efforts in appointing special part-time lecturers from industry are continuing. Such appointments have now been made in Engineering Physics, Mechanical Engineering and Civil Engineering, with an appointment in Electrical Engineering under negotiation.

There is a combined program in the Division of Health Sciences in Clinical Neurological Sciences involving the Faculties of Medicine at McMaster University and the University of Western Ontario. The intent is to rationalize the use of expensive academic resources in relation to the restricted needs for training specialists in neurosurgery and neurology, and to the future system of specialized neurological services for southwestern Ontario. Inter-university co-operative research programs also exist with the University of Toronto in pathology and thrombo-embolism, and in respiratory medicine with the universities of Manitoba and McGill.





GRADUATE ENROLMENT DATA  
DISTRIBUTION OF GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP  
1970-71 Figures As of 6 October 1970

|                     | Canadian | Landed Immigrant | Foreign       |                |        |       |        |       |       | Subtotal Foreign | Total |       |    |   |    |    |     |     |       |       |
|---------------------|----------|------------------|---------------|----------------|--------|-------|--------|-------|-------|------------------|-------|-------|----|---|----|----|-----|-----|-------|-------|
|                     |          |                  | United States | United Kingdom | Europe | Asia  | Africa | Other |       |                  |       |       |    |   |    |    |     |     |       |       |
|                     | 69-70    | 70-71            | 69-70         | 70-71          | 69-70  | 70-71 | 69-70  | 70-71 | 69-70 | 70-71            | 69-70 | 70-71 |    |   |    |    |     |     |       |       |
| Aggregate Figures   |          |                  |               |                |        |       |        |       |       |                  |       |       |    |   |    |    |     |     |       |       |
| Full-time: Master's | 378      | 377              | 118           | 150            | 15     | 20    | 28     | 31    | 7     | 12               | 32    | 52    | 6  | 5 | 20 | 25 | 108 | 145 | 604   | 672   |
| Doctoral            | 198      | 183              | 191           | 233            | 4      | 5     | 9      | 7     | 9     | 8                | 43    | 34    | 4  | 3 | 1  | 8  | 70  | 65  | 459   | 481   |
| Total               | 576      | 560              | 309           | 383            | 19     | 25    | 37     | 38    | 16    | 20               | 75    | 86    | 10 | 8 | 21 | 33 | 178 | 210 | 1,063 | 1,153 |
| Part-time: Master's | 413      | 353              | 56            | 75             | 2      | 1     | 4      | 3     | 1     | 1                | 5     | 5     | 2  | - | -  | 1  | 14  | 11  | 483   | 439   |
| Doctoral            | 15       | 10               | 13            | 2              | -      | -     | 1      | -     | 1     | -                | -     | -     | -  | - | -  | -  | 2   | -   | 30    | 12    |
| Total               | 428      | 363              | 69            | 77             | 2      | 1     | 5      | 3     | 2     | 1                | 5     | 5     | 2  | - | -  | 1  | 16  | 11  | 513   | 451   |

Breakdown by  
Discipline Area

Humanities (Lang. &  
Lit.)

|                     |    |    |    |    |   |   |   |    |   |   |   |   |   |   |   |   |    |    |     |
|---------------------|----|----|----|----|---|---|---|----|---|---|---|---|---|---|---|---|----|----|-----|
| Full-time: Master's | 36 | 60 | 17 | 14 | - | 2 | 4 | 9  | - | - | 1 | - | 1 | 1 | - | 7 | 11 | 60 | 85  |
| Doctoral            | 11 | 15 | 9  | 20 | - | - | - | 1  | 1 | - | - | 1 | 1 | - | - | 2 | 3  | 22 | 38  |
| Total               | 47 | 75 | 26 | 34 | - | 2 | 4 | 10 | 1 | 1 | - | 2 | 1 | 1 | - | 9 | 14 | 82 | 123 |
| Part-time: Master's | 18 | 15 | 19 | 9  | - | - | 2 | 1  | - | - | - | 1 | - | - | - | 3 | 1  | 40 | 25  |
| Doctoral            | 1  | -  | -  | -  | - | - | - | -  | - | - | - | - | - | - | - | - | -  | 1  | -   |
| Total               | 19 | 15 | 19 | 9  | - | - | 2 | 1  | - | - | - | 1 | - | - | - | 3 | 1  | 41 | 25  |



GRADUATE ENROLMENT DATA  
DISTRIBUTION OF GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP  
1970-71 Figures As of 6 October 1970

|                         | Canadian | Landed<br>Immigrant | Foreign          |                   |        |       |        |       |       | Other | Subtotal<br>Foreign | Total |
|-------------------------|----------|---------------------|------------------|-------------------|--------|-------|--------|-------|-------|-------|---------------------|-------|
|                         |          |                     | United<br>States | United<br>Kingdom | Europe | Asia  | Africa |       |       |       |                     |       |
|                         | 69-70    | 70-71               | 69-70            | 70-71             | 69-70  | 70-71 | 69-70  | 70-71 | 69-70 | 70-71 | 69-70               | 70-71 |
| <b>Humanities</b>       |          |                     |                  |                   |        |       |        |       |       |       |                     |       |
| <u>(History, etc.)</u>  |          |                     |                  |                   |        |       |        |       |       |       |                     |       |
| Full-time: Master's     | 41       | 42                  | 12               | 7                 | 6      | 5     | 3      | -     | 2     | 1     | -                   | 64    |
| Doctoral                | 23       | 25                  | 38               | 1                 | 1      | 2     | -      | -     | 4     | 4     | -                   | 69    |
| Total                   | 64       | 67                  | 50               | 7                 | 7      | 7     | 3      | -     | 6     | 5     | -                   | 133   |
| Part-time: Master's     | 11       | 12                  | 9                | -                 | -      | -     | -      | -     | 1     | -     | -                   | 25    |
| Doctoral                | 4        | 5                   | 5                | -                 | -      | 1     | -      | -     | -     | -     | -                   | 5     |
| Total                   | 15       | 17                  | 14               | -                 | -      | 1     | -      | -     | 1     | -     | -                   | 30    |
| <b>Social Sciences</b>  |          |                     |                  |                   |        |       |        |       |       |       |                     |       |
| <u>(General)</u>        |          |                     |                  |                   |        |       |        |       |       |       |                     |       |
| Full-time: Master's     | 54       | 64                  | 25               | 7                 | 11     | 6     | 6      | 1     | 5     | 6     | 2                   | 117   |
| Doctoral                | 16       | 22                  | 19               | 2                 | 4      | 2     | 2      | -     | 1     | 1     | -                   | 60    |
| Total                   | 70       | 86                  | 44               | 9                 | 15     | 8     | 8      | 1     | 6     | 7     | 2                   | 177   |
| Part-time: Master's     | 11       | 12                  | 14               | -                 | 1      | 1     | -      | -     | 1     | -     | -                   | 21    |
| Doctoral                | 2        | -                   | 2                | -                 | -      | -     | -      | -     | -     | -     | -                   | 4     |
| Total                   | 13       | 12                  | 16               | -                 | 1      | 1     | -      | -     | 1     | -     | -                   | 22    |
| <b>Social Sciences</b>  |          |                     |                  |                   |        |       |        |       |       |       |                     |       |
| <u>(Regional, etc.)</u> |          |                     |                  |                   |        |       |        |       |       |       |                     |       |
| Full-time: Master's     | 19       | 8                   | 4                | -                 | -      | -     | 1      | -     | -     | -     | -                   | 23    |
| Doctoral                | 11       | 4                   | 17               | 1                 | -      | -     | -      | -     | 1     | -     | 2                   | 30    |
| Total                   | 30       | 12                  | 21               | 1                 | -      | -     | 1      | -     | 1     | -     | 2                   | 53    |





GRADUATE ENROLMENT DATA  
 DISTRIBUTION OF GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP  
 1970-71 Figures As of 6 October 1970

|                       | Canadian | Landed Immigrant | Foreign       |                |        |       |        |       |       |       | Subtotal Foreign | Total |
|-----------------------|----------|------------------|---------------|----------------|--------|-------|--------|-------|-------|-------|------------------|-------|
|                       |          |                  | United States | United Kingdom | Europe | Asia  | Africa | Other |       |       |                  |       |
|                       | 69-70    | 70-71            | 69-70         | 70-71          | 69-70  | 70-71 | 69-70  | 70-71 | 69-70 | 70-71 | 69-70            | 70-71 |
| Social Sciences       |          |                  |               |                |        |       |        |       |       |       |                  |       |
| (Regional, etc.)      |          |                  |               |                |        |       |        |       |       |       |                  |       |
| (Continued)           |          |                  |               |                |        |       |        |       |       |       |                  |       |
| Part-time: Master's   | 2        | 5                | 3             | 1              | -      | -     | -      | -     | -     | -     | 1                | 1     |
| Doctoral              | 2        | 1                | 4             | 1              | -      | -     | -      | -     | -     | -     | -                | -     |
| Total                 | 4        | 6                | 7             | 2              | -      | -     | -      | -     | -     | -     | 1                | 1     |
|                       |          |                  |               |                |        |       |        |       |       |       | 6                | 7     |
|                       |          |                  |               |                |        |       |        |       |       |       | 6                | 2     |
|                       |          |                  |               |                |        |       |        |       |       |       | 12               | 9     |
| Physical Sciences     |          |                  |               |                |        |       |        |       |       |       |                  |       |
| Full-time: Master's   | 64       | 46               | 13            | 42             | -      | 2     | 2      | 4     | 7     | 12    | 1                | 1     |
| Doctoral              | 91       | 81               | 72            | 78             | 1      | 4     | 2      | 5     | 27    | 20    | 2                | 1     |
| Total                 | 155      | 127              | 85            | 120            | 1      | 6     | 4      | 7     | 34    | 32    | 3                | 2     |
|                       |          |                  |               |                |        |       |        |       |       |       | 13               | 13    |
|                       |          |                  |               |                |        |       |        |       |       |       | 40               | 28    |
|                       |          |                  |               |                |        |       |        |       |       |       | 53               | 48    |
|                       |          |                  |               |                |        |       |        |       |       |       | 293              | 293   |
| Part-time: Master's   | 3        | 2                | 4             | 2              | 1      | -     | -      | -     | 1     | 1     | -                | -     |
| Doctoral              | 4        | 4                | -             | -              | -      | -     | -      | -     | -     | -     | -                | -     |
| Total                 | 7        | 6                | 4             | 2              | 1      | -     | -      | -     | 1     | 1     | -                | -     |
|                       |          |                  |               |                |        |       |        |       |       |       | 2                | 1     |
|                       |          |                  |               |                |        |       |        |       |       |       | 9                | 9     |
|                       |          |                  |               |                |        |       |        |       |       |       | 13               | 9     |
|                       |          |                  |               |                |        |       |        |       |       |       | 4                | 4     |
|                       |          |                  |               |                |        |       |        |       |       |       | 2                | 2     |
|                       |          |                  |               |                |        |       |        |       |       |       | 1                | 1     |
|                       |          |                  |               |                |        |       |        |       |       |       | 9                | 9     |
| Mathematical Sciences |          |                  |               |                |        |       |        |       |       |       |                  |       |
| Full-time: Master's   | 6        | 11               | 2             | 8              | 1      | -     | -      | 1     | 2     | 3     | -                | -     |
| Doctoral              | 12       | 7                | 12            | 13             | -      | -     | -      | -     | 4     | 1     | -                | -     |
| Total                 | 18       | 18               | 14            | 21             | 1      | -     | 1      | 1     | 6     | 4     | -                | -     |
|                       |          |                  |               |                |        |       |        |       |       |       | 7                | 7     |
|                       |          |                  |               |                |        |       |        |       |       |       | 39               | 46    |
| Part-time: Master's   | 1        | -                | -             | 1              | -      | -     | -      | -     | -     | -     | -                | -     |
| Doctoral              | 2        | -                | 1             | -              | -      | -     | -      | -     | -     | -     | -                | -     |
| Total                 | 3        | -                | 1             | 1              | -      | -     | -      | -     | -     | -     | -                | -     |
|                       |          |                  |               |                |        |       |        |       |       |       | 1                | 1     |
|                       |          |                  |               |                |        |       |        |       |       |       | 3                | 3     |
|                       |          |                  |               |                |        |       |        |       |       |       | 4                | 4     |
|                       |          |                  |               |                |        |       |        |       |       |       | 1                | 1     |



GRADUATE ENROLMENT DATA  
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 1970-71 Figures As of 6 October 1970

|                        | Canadian | Landed Immigrant | Foreign       |       |                |       |        |       |       |       |        |       | Subtotal |       | Total |         |    |    |     |     |
|------------------------|----------|------------------|---------------|-------|----------------|-------|--------|-------|-------|-------|--------|-------|----------|-------|-------|---------|----|----|-----|-----|
|                        |          |                  | United States |       | United Kingdom |       | Europe |       | Asia  |       | Africa |       | Other    |       |       | Foreign |    |    |     |     |
|                        | 69-70    | 70-71            | 69-70         | 70-71 | 69-70          | 70-71 | 69-70  | 70-71 | 69-70 | 70-71 | 69-70  | 70-71 | 69-70    | 70-71 | 69-70 | 70-71   |    |    |     |     |
| <u>Engineering</u>     |          |                  |               |       |                |       |        |       |       |       |        |       |          |       |       |         |    |    |     |     |
| Full-time: Master's    | 46       | 38               | 24            | 32    | -              | -     | 4      | 4     | -     | 3     | 8      | 19    | 3        | 3     | 11    | 10      | 26 | 39 | 96  | 109 |
| Doctoral               | 22       | 20               | 15            | 20    | -              | -     | 1      | 1     | 2     | 2     | 5      | 7     | 1        | 1     | -     | 2       | 9  | 13 | 46  | 53  |
| Total                  | 68       | 58               | 39            | 52    | -              | -     | 5      | 5     | 2     | 5     | 13     | 26    | 4        | 4     | 11    | 12      | 35 | 52 | 142 | 162 |
| Part-time: Master's    | 10       | 11               | 6             | 3     | 1              | -     | -      | -     | -     | -     | 2      | -     | -        | -     | -     | -       | 3  | -  | 19  | 14  |
| Doctoral               | -        | -                | 1             | -     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | 1   | -   |
| Total                  | 10       | 11               | 7             | 3     | 1              | -     | -      | -     | -     | -     | 2      | -     | -        | -     | -     | -       | 3  | -  | 20  | 14  |
| <u>Life Sciences</u>   |          |                  |               |       |                |       |        |       |       |       |        |       |          |       |       |         |    |    |     |     |
| Full-time: Master's    | 16       | 16               | 8             | 6     | -              | -     | 1      | 3     | -     | 1     | 1      | -     | -        | -     | -     | -       | 2  | 4  | 26  | 26  |
| Doctoral               | 10       | 7                | 15            | 12    | -              | -     | -      | -     | -     | 1     | 1      | 1     | -        | -     | -     | -       | 1  | 2  | 26  | 21  |
| Total                  | 26       | 23               | 23            | 18    | -              | -     | 1      | 3     | -     | 2     | 2      | 1     | -        | -     | -     | -       | 3  | 6  | 52  | 47  |
| Part-time: Master's    | 3        | 4                | 1             | 1     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | 4   | 5   |
| Doctoral               | -        | -                | -             | -     | -              | -     | -      | -     | 1     | -     | -      | -     | -        | -     | -     | -       | 1  | -  | 1   | -   |
| Total                  | 3        | 4                | 1             | 1     | -              | -     | -      | -     | 1     | -     | -      | -     | -        | -     | -     | -       | 1  | -  | 5   | 5   |
| <u>Health Sciences</u> |          |                  |               |       |                |       |        |       |       |       |        |       |          |       |       |         |    |    |     |     |
| Full-time: Master's    | 1        | 5                | -             | 3     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | 1   | 8   |
| Doctoral               | 2        | 2                | 6             | 5     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | 8   | 7   |
| Total                  | 3        | 7                | 6             | 8     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | 9   | 15  |
| Part-time: Master's    | -        | -                | -             | -     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | -   | -   |
| Doctoral               | -        | -                | -             | -     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | -   | -   |
| Total                  | -        | -                | -             | -     | -              | -     | -      | -     | -     | -     | -      | -     | -        | -     | -     | -       | -  | -  | -   | -   |





GRADUATE ENROLMENT DATA  
DISTRIBUTION OF GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP  
1970-71 Figures As of 6 October 1970

|                     | Canadian | Landed<br>Immigrant | Foreign       |       |                |       |        |       |        |       | Subtotal |       | Total |       |
|---------------------|----------|---------------------|---------------|-------|----------------|-------|--------|-------|--------|-------|----------|-------|-------|-------|
|                     |          |                     | United States |       | United Kingdom |       | Europe | Asia  | Africa | Other | Foreign  |       |       |       |
|                     | 69-70    | 70-71               | 69-70         | 70-71 | 69-70          | 70-71 | 69-70  | 70-71 | 69-70  | 70-71 | 69-70    | 70-71 | 69-70 | 70-71 |
| <u>Education</u>    |          |                     |               |       |                |       |        |       |        |       |          |       |       |       |
| Full-time: Master's | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Doctoral            | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Total               | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Part-time: Master's | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Doctoral            | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Total               | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| <u>Business</u>     |          |                     |               |       |                |       |        |       |        |       |          |       |       |       |
| Full-time: Master's | 95       | 87                  | 13            | 10    | -              | -     | 6      | 3     | 5      | 2     | 6        | 11    | -     | 3     |
| Doctoral            | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Total               | 95       | 87                  | 13            | 10    | -              | -     | 6      | 3     | 5      | 2     | 6        | 11    | -     | 3     |
| Part-time: Master's | 354      | 292                 | -             | 37    | -              | -     | -      | 1     | -      | 1     | -        | 4     | -     | 1     |
| Doctoral            | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Total               | 354      | 292                 | -             | 37    | -              | -     | -      | 1     | -      | 1     | -        | 4     | -     | 1     |
| <u>Other</u>        |          |                     |               |       |                |       |        |       |        |       |          |       |       |       |
| Full-time: Master's | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Doctoral            | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |
| Total               | -        | -                   | -             | -     | -              | -     | -      | -     | -      | -     | -        | -     | -     | -     |



GRADUATE ENROLMENT DATA  
DISTRIBUTION OF GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP  
1970-71 Figures As of 6 October 1970

|  | Canadian | Landed<br>Immigrant | Foreign          |                   |        |       |        | Subtotal<br>Foreign | Total       |
|--|----------|---------------------|------------------|-------------------|--------|-------|--------|---------------------|-------------|
|  |          |                     | United<br>States | United<br>Kingdom | Europe | Asia  | Africa |                     |             |
|  | 69-70    | 70-71               | 69-70            | 70-71             | 69-70  | 70-71 | 69-70  | 70-71               | 69-70 70-71 |

Other  
(Continued)

|                     |   |   |   |   |   |   |   |   |   |
|---------------------|---|---|---|---|---|---|---|---|---|
| Part-time: Master's | - | - | - | - | - | - | - | - | - |
| Doctoral            | - | - | - | - | - | - | - | - | - |
| Total               | - | - | - | - | - | - | - | - | - |

Notes: 1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).

2. Enrolment basis: Student numbers enrolled: "as at" December 1st of each year.

3. Enrolment reported for 1970-71 to be latest estimates available of 1970-71 actuals.

An updated report incorporating December 1st actuals is required by no later than January 1st, 1971.

4. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programs at Ontario Universities in 1969-70 ---" (C.P.U.O. Research Division, May 14, 1970).





GRADUATE ENROLMENT DATA  
DISTRIBUTION OF NEW REGISTERED GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

|                              | Canadian |       | Landed Immigrant |       | Foreign       |                |        |       |        | Subtotal |       |       |       |       | Total |    |     |     |     |     |
|------------------------------|----------|-------|------------------|-------|---------------|----------------|--------|-------|--------|----------|-------|-------|-------|-------|-------|----|-----|-----|-----|-----|
|                              | 69-70    | 70-71 | 69-70            | 70-71 | United States | United Kingdom | Europe | Asia  | Africa | Other    | 69-70 | 70-71 | 69-70 | 70-71 |       |    |     |     |     |     |
| 69-70                        | 70-71    | 69-70 | 70-71            | 69-70 | 70-71         | 69-70          | 70-71  | 69-70 | 70-71  | 69-70    | 70-71 | 69-70 | 70-71 | 69-70 | 70-71 |    |     |     |     |     |
| Aggregate Figures            |          |       |                  |       |               |                |        |       |        |          |       |       |       |       |       |    |     |     |     |     |
| Full-time: Master's          | 188      | 260   | 88               | 98    | 13            | 19             | 25     | 23    | 3      | 8        | 35    | 6     | 3     | 5     | 18    | 81 | 106 | 357 | 464 |     |
|                              | 60       | 52    | 58               | 62    | 3             | 2              | 2      | 3     | 2      | 2        | 15    | 10    | 3     | 1     | 4     | 3  | 29  | 21  | 147 | 135 |
|                              | 248      | 312   | 146              | 160   | 16            | 21             | 27     | 26    | 5      | 10       | 44    | 45    | 9     | 4     | 9     | 21 | 110 | 127 | 504 | 599 |
| Part-time: Master's          | 72       | 83    | 6                | 20    | -             | -              | -      | -     | -      | -        | 2     | -     | -     | -     | -     | -  | 2   | 78  | 105 |     |
|                              | -        | -     | -                | -     | -             | -              | -      | -     | -      | -        | -     | -     | -     | -     | -     | -  | 1   | -   | 1   |     |
|                              | 72       | 83    | 6                | 20    | -             | -              | -      | -     | -      | -        | 2     | -     | -     | -     | -     | 1  | -   | 3   | 78  | 106 |
| Breakdown by Discipline Area |          |       |                  |       |               |                |        |       |        |          |       |       |       |       |       |    |     |     |     |     |
| Humanities (Lang. & Lit.)    |          |       |                  |       |               |                |        |       |        |          |       |       |       |       |       |    |     |     |     |     |
| Full-time: Master's          | 23       | 54    | 15               | 14    | -             | 1              | 4      | 4     | -      | -        | 1     | -     | -     | -     | -     | 6  | 5   | 44  | 73  |     |
|                              | 7        | 9     | 6                | 15    | -             | -              | -      | 1     | -      | 1        | -     | -     | 1     | -     | -     | 1  | 3   | 14  | 27  |     |
|                              | 30       | 63    | 21               | 29    | -             | 1              | 4      | 5     | -      | 1        | 1     | -     | 2     | 1     | -     | 7  | 8   | 58  | 100 |     |
| Part-time: Master's          | 2        | 6     | -                | 1     | -             | -              | -      | -     | -      | -        | -     | -     | -     | -     | -     | -  | -   | 2   | 7   |     |
|                              | -        | -     | -                | -     | -             | -              | -      | -     | -      | -        | -     | -     | -     | -     | -     | -  | -   | -   | -   |     |
|                              | 2        | 6     | -                | 1     | -             | -              | -      | -     | -      | -        | -     | -     | -     | -     | -     | -  | -   | 2   | 7   |     |

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## GRADUATE ENROLMENT DATA

## DISTRIBUTION OF NEW REGISTERED GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

|                        | Canadian | Landed<br>Immigrant | Foreign          |                   |        |       |        | Other | Subtotal |       |       | Total |
|------------------------|----------|---------------------|------------------|-------------------|--------|-------|--------|-------|----------|-------|-------|-------|
|                        |          |                     | United<br>States | United<br>Kingdom | Europe | Asia  | Africa |       | Foreign  |       |       |       |
|                        | 69-70    | 70-71               | 69-70            | 70-71             | 69-70  | 70-71 | 69-70  | 70-71 | 69-70    | 70-71 | 69-70 | 70-71 |
| <u>Humanities</u>      |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| <u>History, etc.</u>   |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| (Continued)            |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| Part-time: Master's    | 1        | 6                   | -                | 1                 | -      | -     | -      | -     | -        | -     | -     | 7     |
| Doctoral               | -        | -                   | -                | -                 | -      | -     | -      | -     | -        | -     | -     | -     |
| Total                  | 1        | 6                   | -                | 1                 | -      | -     | -      | -     | -        | -     | 1     | 7     |
| <u>Social Sciences</u> |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| (General)              |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| Full-time: Master's    | 43       | 57                  | 21               | 16                | 7      | 11    | 6      | 6     | -        | 1     | 5     | 1     |
| Doctoral               | 7        | 13                  | 9                | 11                | 2      | 1     | 1      | 1     | -        | 1     | -     | -     |
| Total                  | 50       | 70                  | 30               | 27                | 9      | 12    | 7      | 7     | -        | 2     | 6     | 1     |
| Part-time: Master's    | 1        | 7                   | 1                | 8                 | -      | -     | -      | -     | -        | -     | -     | 15    |
| Doctoral               | -        | -                   | -                | -                 | -      | -     | -      | -     | -        | -     | -     | -     |
| Total                  | 1        | 7                   | 1                | 8                 | -      | -     | -      | -     | -        | -     | -     | 15    |
| <u>Social Sciences</u> |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| (Regional, etc.)       |          |                     |                  |                   |        |       |        |       |          |       |       |       |
| Full-time: Master's    | 13       | 4                   | 4                | 1                 | -      | -     | -      | -     | -        | -     | 1     | 17    |
| Doctoral               | 5        | 1                   | 5                | 3                 | -      | -     | -      | -     | -        | 2     | 1     | 12    |
| Total                  | 18       | 5                   | 9                | 4                 | -      | -     | -      | -     | -        | 2     | 2     | 29    |
| Part-time: Master's    | -        | -                   | -                | -                 | -      | -     | -      | -     | -        | -     | -     | -     |
| Doctoral               | -        | -                   | -                | -                 | -      | -     | -      | -     | -        | -     | -     | -     |
| Total                  | -        | -                   | -                | -                 | -      | -     | -      | -     | -        | -     | -     | -     |





## GRADUATE ENROLMENT DATA

## DISTRIBUTION OF NEW REGISTERED GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

|                              | Canadian | Landed Immigrant | Foreign |       |       |       | Africa | Asia  | Europe | United Kingdom | Other | Subtotal Foreign | Total       |
|------------------------------|----------|------------------|---------|-------|-------|-------|--------|-------|--------|----------------|-------|------------------|-------------|
|                              |          |                  | 69-70   | 70-71 | 69-70 | 70-71 |        |       |        |                |       |                  |             |
|                              | 69-70    | 70-71            | 69-70   | 70-71 | 69-70 | 70-71 | 69-70  | 70-71 | 69-70  | 70-71          | 69-70 | 70-71            | 69-70 70-71 |
| <u>Physical Sciences</u>     |          |                  |         |       |       |       |        |       |        |                |       |                  |             |
| Full-time: Master's          | 33       | 26               | 8       | 23    | -     | -     | -      | 5     | 2      | 1              | -     | 6                | 62          |
| Doctoral                     | 26       | 17               | 12      | 13    | 1     | -     | 1      | 4     | 2      | -              | 2     | 15               | 35          |
| Total                        | 59       | 43               | 20      | 36    | 1     | -     | 1      | 12    | 2      | 3              | 2     | 21               | 97          |
| Part-time: Master's          | -        | -                | -       | -     | -     | -     | -      | -     | -      | -              | -     | -                | -           |
| Doctoral                     | -        | -                | -       | -     | -     | -     | -      | -     | -      | -              | -     | -                | -           |
| Total                        | -        | -                | -       | -     | -     | -     | -      | -     | -      | -              | -     | -                | -           |
| <u>Mathematical Sciences</u> |          |                  |         |       |       |       |        |       |        |                |       |                  |             |
| Full-time: Master's          | 3        | 9                | 2       | 7     | 1     | 1     | -      | 2     | 1      | -              | -     | 3                | 21          |
| Doctoral                     | 1        | -                | 2       | 2     | -     | -     | -      | -     | -      | -              | -     | -                | 3           |
| Total                        | 4        | 9                | 4       | 9     | 1     | 1     | -      | 2     | 1      | -              | -     | 3                | 23          |
| Part-time: Master's          | -        | -                | -       | 1     | -     | -     | -      | -     | -      | -              | -     | -                | 1           |
| Doctoral                     | -        | -                | -       | -     | -     | -     | -      | -     | -      | -              | -     | -                | -           |
| Total                        | -        | -                | -       | 1     | -     | -     | -      | -     | -      | -              | -     | -                | 1           |
| <u>Engineering</u>           |          |                  |         |       |       |       |        |       |        |                |       |                  |             |
| Full-time: Master's          | 14       | 26               | 10      | 17    | -     | -     | 2      | 8     | 3      | 2              | 2     | 16               | 69          |
| Doctoral                     | 4        | 3                | 3       | 4     | -     | -     | 1      | 3     | -      | -              | -     | 4                | 11          |
| Total                        | 18       | 29               | 13      | 21    | -     | -     | 3      | 11    | 3      | 2              | 2     | 20               | 80          |
| Part-time: Master's          | -        | 5                | -       | 1     | -     | -     | -      | -     | -      | -              | -     | -                | 6           |
| Doctoral                     | -        | -                | -       | -     | -     | -     | -      | -     | -      | -              | -     | -                | -           |
| Total                        | -        | 5                | -       | 1     | -     | -     | -      | -     | -      | -              | -     | -                | 6           |



GRADUATE ENROLMENT DATA  
DISTRIBUTION OF NEW REGISTERED GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

|                        | Canadian | Landed Immigrant | United States |       |       |       | Foreign |       |       |       | Subtotal Foreign | Total |
|------------------------|----------|------------------|---------------|-------|-------|-------|---------|-------|-------|-------|------------------|-------|
|                        |          |                  | 69-70         | 70-71 | 69-70 | 70-71 | 69-70   | 70-71 | 69-70 | 70-71 |                  |       |
|                        | 69-70    | 70-71            | 69-70         | 70-71 | 69-70 | 70-71 | 69-70   | 70-71 | 69-70 | 70-71 | 69-70            | 70-71 |
| <u>Life Sciences</u>   |          |                  |               |       |       |       |         |       |       |       |                  |       |
| Full-time: Master's    | 4        | 9                | 4             | 4     | -     | 1     | 3       | -     | 1     | 1     | -                | 17    |
| Doctoral               | 3        | 2                | 4             | 2     | -     | -     | -       | -     | -     | -     | -                | 5     |
| Total                  | 7        | 11               | 8             | 6     | -     | 1     | 3       | -     | 1     | 1     | 2                | 22    |
| Part-time: Master's    | 2        | 1                | -             | -     | -     | -     | -       | -     | -     | -     | -                | 1     |
| Doctoral               | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Total                  | 2        | 1                | -             | -     | -     | -     | -       | -     | -     | -     | -                | 1     |
| <u>Health Sciences</u> |          |                  |               |       |       |       |         |       |       |       |                  |       |
| Full-time: Master's    | -        | 5                | -             | 3     | -     | -     | -       | -     | -     | -     | -                | 8     |
| Doctoral               | -        | -                | 3             | -     | -     | -     | -       | -     | -     | -     | -                | 3     |
| Total                  | -        | 5                | 3             | 3     | -     | -     | -       | -     | -     | -     | -                | 8     |
| Part-time: Master's    | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Doctoral               | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Total                  | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| <u>Education</u>       |          |                  |               |       |       |       |         |       |       |       |                  |       |
| Full-time: Master's    | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Doctoral               | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Total                  | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Part-time: Master's    | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Doctoral               | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |
| Total                  | -        | -                | -             | -     | -     | -     | -       | -     | -     | -     | -                | -     |



## GRADUATE ENROLMENT DATA

## DISTRIBUTION OF NEW REGISTERED GRADUATE STUDENTS (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA AND CITIZENSHIP

|                     | Canadian |       | Landed Immigrant |       | United States |       | United Kingdom |       | Foreign |       | Africa |       | Other |       | Subtotal |       | Total |    |    |
|---------------------|----------|-------|------------------|-------|---------------|-------|----------------|-------|---------|-------|--------|-------|-------|-------|----------|-------|-------|----|----|
|                     | 69-70    | 70-71 | 69-70            | 70-71 | 69-70         | 70-71 | 69-70          | 70-71 | 69-70   | 70-71 | 69-70  | 70-71 | 69-70 | 70-71 | 69-70    | 70-71 |       |    |    |
| <u>Business</u>     |          |       |                  |       |               |       |                |       |         |       |        |       |       |       |          |       |       |    |    |
| Full-time: Master's | 28       | 35    | 12               | 1     | -             | -     | 4              | 3     | 3       | -     | 5      | 7     | 2     | -     | 2        | 14    | 12    | 54 | 48 |
|                     | -        | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
|                     | Total    | 28    | 35               | 12    | 1             | -     | -              | 4     | 3       | 3     | -      | 5     | 7     | 2     | -        | 2     | 14    | 12 | 54 |
| Part-time: Master's | 66       | 59    | 5                | 8     | -             | -     | -              | -     | -       | -     | -      | 2     | -     | -     | -        | -     | 2     | 71 | 69 |
|                     | -        | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
|                     | Total    | 66    | 59               | 5     | 8             | -     | -              | -     | -       | -     | -      | 2     | -     | -     | -        | -     | 2     | 71 | 69 |
| <u>Other</u>        |          |       |                  |       |               |       |                |       |         |       |        |       |       |       |          |       |       |    |    |
| Full-time: Master's | -        | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
|                     | -        | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
|                     | Total    | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
| Part-time: Master's | -        | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
|                     | -        | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |
|                     | Total    | -     | -                | -     | -             | -     | -              | -     | -       | -     | -      | -     | -     | -     | -        | -     | -     | -  | -  |

Notes: 1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).

2. Enrolment basis: Student numbers enrolled "as at" December 1st of each year.

3. Enrolment reported for 1970-71 to be latest estimates available of 1970-71 actuals.

An updated report incorporating December 1st actuals is required by no later than January 1, 1971.

4. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programs at Ontario Universities in 1969-70 ---" (C. P. U. O. Research Division, May 11, 1970).

5. "New registered" graduate students are those enrolled in their program for the first time for the Fall Term.

Finance Branch

6/10/70





GRADUATE ENROLMENT DATA  
GRADUATE DEGREES AWARDED//TO BE AWARDED BY  
DISCIPLINE AREA

Form CUA-70-C

|  | 1964-65 | 1965-66 | 1966-67 | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | Actual  | Actual  | Actual  | Actual  | Actual  | Actual  | Est     | Est     | Est.    | Est.    | Est.    | Est.    |

Aggregate  
Figures

|          |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Master's | 102 | 145 | 189 | 243 | 286 | 346 | 387 | 438 | 501 | 560 | 605 | 643 |
| Doctoral | 11  | 25  | 35  | 56  | 53  | 75  | 86  | 114 | 133 | 177 | 206 | 204 |

Breakdown by  
Discipline Area

Humanities

|          |    |    |    |    |    |    |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|
| Master's | 23 | 26 | 22 | 27 | 37 | 45 | 50 | 65 | 70 | 75 | 80 | 85 |
| Doctoral | -  | -  | -  | 1  | -  | -  | 1  | 5  | 7  | 16 | 16 | 13 |

Humanities  
(History, etc.)

|          |    |    |    |    |    |    |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|
| Master's | 17 | 18 | 29 | 25 | 32 | 42 | 56 | 49 | 63 | 67 | 69 | 76 |
| Doctoral | -  | -  | -  | -  | 2  | -  | 6  | 22 | 16 | 16 | 20 | 22 |

Social Sciences  
(General)

|          |   |    |    |    |    |    |    |    |    |     |     |     |
|----------|---|----|----|----|----|----|----|----|----|-----|-----|-----|
| Master's | 9 | 14 | 29 | 42 | 42 | 54 | 80 | 89 | 98 | 113 | 123 | 126 |
| Doctoral | 1 | 2  | -  | 4  | 5  | 10 | 8  | 10 | 16 | 28  | 37  | 36  |

Social Sciences  
(Regional, etc.)

|          |   |   |   |    |   |   |    |    |    |    |    |    |
|----------|---|---|---|----|---|---|----|----|----|----|----|----|
| Master's | 5 | 1 | 6 | 10 | 9 | 8 | 14 | 12 | 14 | 21 | 24 | 25 |
| Doctoral | - | - | - | 1  | - | 3 | 6  | 6  | 9  | 10 | 12 | 10 |



GRADUATE ENROLMENT DATA  
GRADUATE DEGREES AWARDED/TO BE AWARDED BY  
DISCIPLINE AREA

Form CUA-70-C

|                              | 1964-65 | 1965-66 | 1966-67 | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                              | Actual  | Actual  | Actual  | Actual  | Actual  | Actual  | Est.    | Est.    | Est.    | Est.    | Est.    | Est.    |
| <u>Physical Sciences</u>     |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's                     | 13      | 21      | 22      | 24      | 24      | 19      | 29      | 31      | 30      | 30      | 31      | 31      |
| Doctoral                     | 10      | 19      | 25      | 37      | 32      | 43      | 40      | 43      | 56      | 65      | 65      | 65      |
| <u>Mathematical Sciences</u> |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's                     | 3       | 4       | 6       | 7       | 2       | 7       | 8       | 20      | 23      | 27      | 29      | 35      |
| Doctoral                     | -       | 2       | 3       | 4       | 3       | 4       | 10      | 7       | 9       | 11      | 15      | 20      |
| <u>Engineering</u>           |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's                     | 18      | 16      | 26      | 35      | 37      | 55      | 48      | 48      | 65      | 75      | 85      | 95      |
| Doctoral                     | -       | 2       | 3       | 4       | 5       | 11      | 8       | 10      | 13      | 20      | 24      | 20      |
| <u>Life Sciences</u>         |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's                     | 3       | 3       | 4       | 4       | 5       | 9       | 6       | 7       | 10      | 12      | 12      | 12      |
| Doctoral                     | -       | 2       | 4       | 5       | 6       | 4       | 5       | 8       | 4       | 9       | 15      | 17      |
| <u>Health Sciences</u>       |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's                     | -       | -       | -       | -       | -       | -       | -       | 5       | 9       | 14      | 17      | 25      |
| Doctoral                     | -       | -       | -       | -       | -       | -       | 2       | 3       | 3       | 2       | 6       | 9       |
| <u>Education</u>             |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's                     | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| Doctoral                     | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |



GRADUATE ENROLMENT DATA  
GRADUATE DEGREES AWARDED/TO BE AWARDED BY  
DISCIPLINE AREA

Form CUA-70-C

|                 | 1964-65 | 1965-66 | 1966-67 | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                 | Actual  | Actual  | Actual  | Actual  | Actual  | Actual  | Est.    | Est.    | Est.    | Est.    | Est.    | Est.    |
| <u>Business</u> |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's        | 11      | 42      | 45      | 69      | 98      | 107     | 96      | 112     | 119     | 126     | 135     | 135     |
| Doctoral        | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| <u>Other</u>    |         |         |         |         |         |         |         |         |         |         |         |         |
| Master's        | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| Doctoral        | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |

Notes: (1) Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programs at Ontario Universities in 1969-70 ---" (C. P. U. O. Research Division, May 11, 1970).





1(b)iii

Pattern of Master's Degrees

The McMaster Graduate Studies Calendar for 1964-65 shows three Master's Degrees which could be obtained without any research theses (M.B.A., M.A. in History and M.Eng. in Engineering Design). The 1969-70 Calendar shows eight departments in which the Master's Degree can be obtained by course work only (Classics, Economics, Geography, German, History, Mathematics, Political Science, Sociology), and six programs in Engineering Departments which emphasize course work but include a project report (Chemical Engineering, Civil Engineering, Electrical Engineering, Engineering Physics, Engineering Design, Production Engineering).

There can be little doubt that this tendency to de-emphasize the research thesis has resulted in a reduction in the average time required to obtain a Master's Degree. It may be noted that at least one of the departments which has been stressing the course degree has recently taken steps to strengthen its thesis program as a result of a feeling that the course program has not provided as good a training either for further graduate work or for employment at the M.A. level. Other departments are quite satisfied with the course program. In every case the regulations provide the possibility of obtaining a Master's Degree with a research thesis.



GRADUATE ENROLMENT DATA  
PROJECTED GRADUATE ENROLMENT (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA

|   | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---------|---------|---------|---------|---------|---------|
| <u>Aggregate Figures</u>                      |         |         |         |         |         |         |
| Full-time: - Master's                         | 674     | 716     | 835     | 908     | 969     | 976     |
| - Doctoral                                    | 496     | 603     | 681     | 765     | 830     | 889     |
| - Total                                       | 1,170   | 1,319   | 1,516   | 1,673   | 1,799   | 1,865   |
| Part-time: - Master's                         | 474     | 515     | 544     | 565     | 568     | 583     |
| - Doctoral                                    | 28      | 32      | 36      | 41      | 45      | 50      |
| - Total                                       | 502     | 547     | 580     | 606     | 613     | 633     |
| <u>Breakdown by Discipline Area</u>           |         |         |         |         |         |         |
| <u>Humanities (Language &amp; Literature)</u> |         |         |         |         |         |         |
| Full-time: - Master's                         | 88      | 83      | 91      | 98      | 102     | 102     |
| - Doctoral                                    | 39      | 50      | 56      | 60      | 65      | 70      |
| - Total                                       | 127     | 133     | 147     | 158     | 167     | 172     |
| Part-time: - Master's                         | 55      | 55      | 55      | 60      | 60      | 60      |
| - Doctoral                                    | 4       | 5       | 6       | 6       | 7       | 8       |
| - Total                                       | 59      | 60      | 61      | 66      | 67      | 68      |
| <u>Humanities (History, etc.)</u>             |         |         |         |         |         |         |
| Full-time: - Master's                         | 66      | 79      | 84      | 86      | 90      | 90      |
| - Doctoral                                    | 67      | 79      | 87      | 98      | 103     | 106     |
| - Total                                       | 133     | 158     | 171     | 184     | 193     | 196     |
| Part-time: - Master's                         | 20      | 20      | 25      | 25      | 25      | 30      |
| - Doctoral                                    | 7       | 8       | 9       | 10      | 10      | 10      |
| - Total                                       | 27      | 28      | 34      | 35      | 35      | 40      |



GRADUATE ENROLMENT DATA  
PROJECTED GRADUATE ENROLMENT (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA

|   | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|---|---------|---------|---------|---------|---------|---------|
| <u>Social Sciences (General)</u>        |         |         |         |         |         |         |
| Full-time: - Master's                   | 115     | 117     | 140     | 155     | 163     | 163     |
| - Doctoral                              | 61      | 93      | 116     | 140     | 154     | 168     |
| - Total                                 | 176     | 210     | 256     | 295     | 317     | 331     |
| - Master's                              | 25      | 25      | 30      | 30      | 30      | 35      |
| - Doctoral                              | 6       | 7       | 8       | 10      | 12      | 15      |
| - Total                                 | 31      | 32      | 38      | 40      | 42      | 50      |
| <u>Social Sciences (Regional, etc.)</u> |         |         |         |         |         |         |
| Full-time: - Master's                   | 17      | 24      | 35      | 39      | 39      | 37      |
| - Doctoral                              | 26      | 32      | 35      | 38      | 40      | 44      |
| - Total                                 | 43      | 56      | 70      | 77      | 79      | 81      |
| Part-time: - Master's                   | 5       | 5       | 6       | 6       | 6       | 6       |
| - Doctoral                              | 4       | 4       | 4       | 5       | 5       | 5       |
| - Total                                 | 9       | 9       | 10      | 11      | 11      | 11      |
| <u>Physical Sciences</u>                |         |         |         |         |         |         |
| Full-time: - Master's                   | 117     | 93      | 110     | 125     | 124     | 121     |
| - Doctoral                              | 189     | 212     | 212     | 209     | 221     | 227     |
| - Total                                 | 306     | 305     | 322     | 334     | 345     | 348     |
| Part-time: - Master's                   | 8       | 9       | 9       | 10      | 10      | 10      |
| - Doctoral                              | 3       | 3       | 3       | 3       | 4       | 4       |
| - Total                                 | 11      | 12      | 12      | 13      | 14      | 14      |





GRADUATE ENROLMENT DATA  
PROJECTED GRADUATE ENROLMENT (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA

|                              | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|------------------------------|---------|---------|---------|---------|---------|---------|
| <u>Mathematical Sciences</u> |         |         |         |         |         |         |
| Full-time: - Master's        | 25      | 33      | 35      | 37      | 45      | 45      |
| - Doctoral                   | 29      | 37      | 43      | 47      | 47      | 47      |
| - Total                      | 54      | 70      | 78      | 84      | 92      | 92      |
| Part-time: - Master's        | 3       | 3       | 4       | 4       | 5       | 5       |
| - Doctoral                   | 3       | 3       | 3       | 3       | 3       | 3       |
| - Total                      | 6       | 6       | 7       | 7       | 8       | 8       |
| <u>Engineering</u>           |         |         |         |         |         |         |
| Full-time: - Master's        | 92      | 106     | 130     | 141     | 153     | 162     |
| - Doctoral                   | 54      | 61      | 66      | 76      | 83      | 88      |
| - Total                      | 146     | 167     | 196     | 217     | 236     | 250     |
| Part-time: - Master's        | 15      | 20      | 20      | 25      | 25      | 30      |
| - Doctoral                   | 0       | 1       | 1       | 1       | 1       | 2       |
| - Total                      | 15      | 21      | 21      | 26      | 26      | 32      |
| <u>Life Sciences</u>         |         |         |         |         |         |         |
| Full-time: - Master's        | 26      | 36      | 44      | 42      | 46      | 45      |
| - Doctoral                   | 23      | 28      | 48      | 66      | 77      | 90      |
| - Total                      | 49      | 64      | 92      | 108     | 123     | 135     |
| Part-time: - Master's        | 3       | 3       | 4       | 4       | 5       | 5       |
| - Doctoral                   | 1       | 1       | 1       | 2       | 2       | 2       |
| - Total                      | 4       | 4       | 5       | 6       | 7       | 7       |



GRADUATE ENROLMENT DATA  
PROJECTED GRADUATE ENROLMENT (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA

|                        | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|------------------------|---------|---------|---------|---------|---------|---------|
| <u>Health Sciences</u> |         |         |         |         |         |         |
| Full-time: - Master's  | 8       | 15      | 21      | 25      | 32      | 36      |
| - Doctoral             | 8       | 11      | 18      | 26      | 30      | 34      |
| - Total                | 16      | 26      | 39      | 51      | 62      | 70      |
| Part-time: - Master's  | 0       | 0       | 1       | 1       | 2       | 2       |
| - Doctoral             | 0       | 0       | 1       | 1       | 1       | 1       |
| - Total                | 0       | 0       | 2       | 2       | 3       | 3       |
| <u>Education</u>       |         |         |         |         |         |         |
| Full-time: - Master's  |         |         |         |         |         |         |
| - Doctoral             |         |         |         |         |         |         |
| - Total                |         |         |         |         |         |         |
| Part-time: - Master's  |         |         |         |         |         |         |
| - Doctoral             |         |         |         |         |         |         |
| - Total                |         |         |         |         |         |         |
| <u>Business</u>        |         |         |         |         |         |         |
| Full-time: - Master's  | 120     | 130     | 145     | 160     | 175     | 175     |
| - Doctoral             | 0       | 0       | 0       | 5       | 10      | 15      |
| - Total                | 120     | 130     | 145     | 165     | 185     | 190     |
| Part-time: - Master's  | 340     | 375     | 390     | 400     | 400     | 400     |
| - Doctoral             | 0       | 0       | 0       | 0       | 0       | 0       |
| - Total                | 340     | 375     | 390     | 400     | 400     | 400     |



GRADUATE ENROLMENT DATA  
PROJECTED GRADUATE ENROLMENT (FULL-TIME AND PART-TIME) BY DISCIPLINE AREA

|              | 1970-71 | 1971-72 | 1972-73 | 1973-74 | 1974-75 | 1975-76 |
|--------------|---------|---------|---------|---------|---------|---------|
| <u>Other</u> |         |         |         |         |         |         |
| Full-time:   |         |         |         |         |         |         |
| - Master's   |         |         |         |         |         |         |
| - Doctoral   |         |         |         |         |         |         |
| - Total      |         |         |         |         |         |         |
| Part-time:   |         |         |         |         |         |         |
| - Master's   |         |         |         |         |         |         |
| - Doctoral   |         |         |         |         |         |         |
| - Total      |         |         |         |         |         |         |

Notes: 1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).

2. Enrolment basis: Student numbers enrolled: "as at" December 1st of each year.

3. Enrolment reported for 1970-71 to be latest estimates available of 1970-71 actuals.

4. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programs at Ontario Universities in 1969-70 ----" (C.P.U.O. Research Division, May 11, 1970).

Finance Branch  
6/10/70





1(b)iv

Reconciliation of McMaster enrolment projections with Provincial enrolment projections

Since we do not appear to have graduate enrolment projections for the Province broken down by discipline groups, we can only compare projected total enrolments. The 1969 projections show a total of 21,267 graduate students in Ontario in 1975-76, and McMaster's projection is 1,865. McMaster's enrolment represents 8.8 percent of the total. In 1968-69 McMaster had 10.5 percent of the Provincial enrolment. In 1969-70 McMaster had 9.2 percent and we believe that the figure for 1970-71 is somewhat higher, perhaps 9.4 percent. Unless other graduate schools have a much more rapid proportional growth, this comparison would suggest that the 1975-76 estimate is not unrealistic.

It may be of interest to examine the reliability of the Provincial projection of 21,267 graduate students in 1975-76. Many factors will affect graduate enrolment in the next five years; an increase due to changing attitudes with respect to formal study beyond the baccalaureate, a decrease in some areas due to students' perception of employment opportunities, an increase in some areas for the same reason, the levels of student financial support. These effects are hard to estimate. Presumably, however, there is a correlation between the graduate enrolment in any year and the undergraduate enrolment in the preceding four years. As a rough index we have divided the graduate enrolment of each year by the undergraduate enrolment of two years earlier. We find that for each of the three years 1966-67 through 1968-69, this index had the value 0.20, for 1969-70 it was 0.19, and for 1970-71 it appears to be 0.17. The 1969 projections for the years 1971-72 through 1975-76 give a value 0.18. Hence the projections for these years look reasonable as far as a comparison with undergraduate enrolment is concerned. The percentage increase of undergraduate enrolment begins to decrease in 1973-74; this may have a noticeable effect at the graduate level in the years following 1975-76.

Perhaps a more significant way of justifying the McMaster estimates would be to describe how they were reached. Projections were made department by department of the enrolment in the graduate programs which are currently approved or, in four cases, definitely planned.



In the more established departments, particularly in the Sciences, very little growth was assumed, e.g. the Chemistry Department was assumed to grow from its present 104 students to only 115. At McMaster the Arts Departments are growing towards viable size Ph.D. programs. It is expected that this University will naturally increase its activity in Health Sciences as the Medical School matures. The growth in Mathematics is associated with the renewed interest in mathematical approaches in other subjects, particularly in statistics and computation. Healthy growth in the Faculty of Engineering is based almost entirely on the development of carefully conceived programs which are our response to the need for increased emphasis on industry-oriented Master's work. Of course, the amount of graduate studies in any university can be regulated as a matter of university policy. For some years McMaster has anticipated that when its central campus reaches enrolment saturation (about 1975), the graduate students will constitute approximately 18 percent of the student body. We believe that this, or a slightly higher fraction, is appropriate to the history of the University and to the particular niche in the academic world which it would aspire to fulfill.



GRADUATE ENROLMENT DATA  
SURVEY OF ANNUAL FINANCIAL RESOURCES FOR THE  
SUPPORT OF FULL-TIME GRADUATE STUDENTS 1969-70 ACTUAL

Instructions: Indicate the number of students receiving any support.  
(double-counting is anticipated).

| Discipline Area                               | Scholarships and Bursaries |       | Research Grants      |           | Remuneration                |                      | P.O.S.A.P. Not Supported under any of Categories 1-7 |
|---|----------------------------|-------|----------------------|-----------|-----------------------------|----------------------|--|
|   | P.O.G.                     | OTHER | Federal Agencies (3) | Other (4) | Teaching Assistantships (5) | Other University (6) |  |
|   | (1)                        | (2)   |                      |           |                             |                      | (7) (8)  |
| <u>Aggregate Figures</u>                      |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                           | 107                        | 62    | 149                  | 35        | 453                         | 63                   | 101  |
| Doctoral                                      | 127                        | 134   | 194                  | 17        | 418                         | 44                   | 7  |
| Total   | 234                        | 196   | 343                  | 52        | 871                         | 107                  | 108  |
| <u>Breakdown by Discipline Area</u>           |                            |       |                      |           |                             |                      |  |
| <u>Humanities (Language &amp; Literature)</u> |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                           | 25                         | 6     |                      |           | 59                          | 15                   | 1  |
| Doctoral                                      | 14                         | 5     |                      |           | 21                          | 5                    | -  |
| Total   | 39                         | 11    |                      |           | 80                          | 20                   | 1  |
| <u>Humanities (History, etc.)</u>             |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                           | 27                         | 4     |                      |           | 68                          | 14                   | 2  |
| Doctoral                                      | 23                         | 16    |                      |           | 45                          | 14                   | -  |
| Total   | 50                         | 20    |                      |           | 113                         | 28                   | 2  |





| Discipline Area                         | Scholarships and Bursaries |       | Research Grants      |           | Remuneration                |                      | P.O.S.A.P. Not Supported under any of Categories 1-7 |
|---|----------------------------|-------|----------------------|-----------|-----------------------------|----------------------|--|
|   | P.O.G.                     | OTHER | Federal Agencies (3) | Other (4) | Teaching Assistantships (5) | Other University (6) |  |
|   | (1)                        | (2)   |                      |           |                             |                      | (7) (8)  |
| <u>Social Sciences (General)</u>        |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                     | 33                         | 5     |                      |           | 90                          | 9                    | 6  |
| Doctoral                                | 17                         | 9     |                      |           | 36                          | 3                    | 1  |
| Total                                   | 50                         | 14    |                      |           | 126                         | 12                   | 7  |
| <u>Social Sciences (Regional, etc.)</u> |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                     | 9                          | -     |                      |           | 23                          | 2                    | -  |
| Doctoral                                | 11                         | 6     |                      |           | 29                          | 2                    | -  |
| Total                                   | 20                         | 6     |                      |           | 52                          | 4                    | -  |
| <u>Physical Sciences</u>                |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                     | 7                          | 30    | 67                   | 4         | 89                          | 4                    | 2  |
| Doctoral                                | 46                         | 57    | 141                  | 7         | 193                         | 11                   | 2  |
| Total                                   | 53                         | 87    | 208                  | 11        | 282                         | 15                   | 4  |
| <u>Mathematical Sciences</u>            |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                     | -                          | 2     | 7                    | 3         | 11                          | -                    | -  |
| Doctoral                                | 4                          | 2     | 22                   | 2         | 27                          | 1                    | 1  |
| Total                                   | 4                          | 4     | 29                   | 5         | 38                          | 1                    | 1  |
| <u>Engineering</u>                      |                            |       |                      |           |                             |                      |  |
| Full-time: Master's                     | 3                          | 10    | 58                   | 23        | 88                          | 11                   | 6  |
| Doctoral                                | 1                          | 24    | 18                   | 4         | 42                          | 4                    | 1  |
| Total                                   | 4                          | 34    | 76                   | 27        | 130                         | 15                   | 7  |
|   |                            |       |                      |           |                             |                      | 29   |



| Discipline Area        | Scholarships and Bursaries |     | Research Grants      |           | Remuneration                |                      | P.O.S.A.P. Not Supported under any of Categories 1-7 |
|------------------------|----------------------------|-----|----------------------|-----------|-----------------------------|----------------------|--|
|                        | (1)                        | (2) | Federal Agencies (3) | Other (4) | Teaching Assistantships (5) | Other University (6) | (7) (8)  |
| <u>Life Sciences</u>   |                            |     |                      |           |                             |                      |  |
| Full-time: Master's    | 3                          | 5   | 16                   | 5         | 25                          | 4                    | 1  |
| Doctoral               | 11                         | 10  | 12                   | 4         | 22                          | 4                    | -  |
| Total                  | 14                         | 15  | 28                   | 9         | 47                          | 8                    | 1  |
| <u>Health Sciences</u> |                            |     |                      |           |                             |                      |  |
| Full-time: Master's    | -                          | -   | 1                    | -         | -                           | 1                    | -  |
| Doctoral               | -                          | 5   | 1                    | -         | 3                           | -                    | 2  |
| Total                  | -                          | 5   | 2                    | -         | 3                           | 1                    | 2  |
| <u>Education</u>       |                            |     |                      |           |                             |                      |  |
| Full-time: Master's    |                            |     |                      |           |                             |                      |  |
| Doctoral               |                            |     |                      |           |                             |                      |  |
| Total                  |                            |     |                      |           |                             |                      |  |
| <u>Business</u>        |                            |     |                      |           |                             |                      |  |
| Full-time: Master's    |                            |     |                      |           | 45                          | 3                    | 83   |
| Doctoral               |                            |     |                      |           | -                           | -                    | -  |
| Total                  |                            |     |                      |           | 45                          | 3                    | 83   |
| <u>Other</u>           |                            |     |                      |           |                             |                      |  |
| Full-time: Master's    |                            |     |                      |           |                             |                      |  |
| Doctoral               |                            |     |                      |           |                             |                      |  |
| Total                  |                            |     |                      |           |                             |                      |  |



SURVEY OF ANNUAL FINANCIAL RESOURCES FOR THE

SUPPORT OF FULL-TIME GRADUATE STUDENTS 1969-70 ACTUAL

| Discipline Area                               | NUMBER OF STUDENTS BY LEVEL OF SUPPORT |         |             |               |               |               |               |                |
|---|--|---------|-------------|---------------|---------------|---------------|---------------|----------------|
|   | None                                   | \$1-500 | \$501-1,000 | \$1,001-2,000 | \$2,001-3,000 | \$3,001-4,000 | \$4,001-5,000 | \$5,001+ TOTAL |
| <u>Aggregate Figures</u>                      |  |         |             |               |               |               |               |                |
| Full-time: Master's                           | 101                                    | 13      | 23          | 41            | 16            | 383           | 26            | 1 604          |
| Doctoral                                      | 7                                      | -       | 6           | 6             | 6             | 313           | 109           | 12 459         |
| Total   | 108                                    | 13      | 29          | 47            | 22            | 696           | 135           | 13 1,063       |
| <u>Breakdown by Discipline Area</u>           |  |         |             |               |               |               |               |                |
| <u>Humanities (Language &amp; Literature)</u> |  |         |             |               |               |               |               |                |
| Full-time: Master's                           | 1                                      | -       | -           | -             | 1             | 58            | -             | - 60           |
| Doctoral                                      | -                                      | -       | -           | -             | -             | 18            | 3             | 1 22           |
| Total   | 1                                      | -       | -           | -             | 1             | 76            | 3             | 1 82           |
| <u>Humanities (History, etc.)</u>             |  |         |             |               |               |               |               |                |
| Full-time: Master's                           | 2                                      | -       | -           | 1             | 2             | 65            | -             | - 70           |
| Doctoral                                      | -                                      | -       | -           | 1             | 1             | 41            | 9             | 3 55           |
| Total   | 2                                      | -       | -           | 2             | 3             | 106           | 9             | 3 125          |
| <u>Social Sciences (General)</u>              |  |         |             |               |               |               |               |                |
| Full-time: Master's                           | 6                                      | 1       | -           | 2             | 3             | 87            | -             | - 99           |
| Doctoral                                      | 1                                      | -       | -           | -             | 3             | 32            | 5             | - 41           |
| Total   | 7                                      | 1       | -           | 2             | 6             | 119           | 5             | - 140          |
| <u>Social Sciences (Regional, etc.)</u>       |  |         |             |               |               |               |               |                |
| Full-time: Master's                           | -                                      | -       | -           | 1             | -             | 22            | -             | - 23           |
| Doctoral                                      | -                                      | -       | 1           | 1             | 1             | 23            | 3             | 1 30           |
| Total   | -                                      | -       | 1           | 2             | 1             | 45            | 3             | 1 53           |





## NUMBER OF STUDENTS BY LEVEL OF SUPPORT

[illegible]



NUMBER OF STUDENTS BY LEVEL OF SUPPORT

| Discipline Area     | NUMBER OF STUDENTS BY LEVEL OF SUPPORT |         |             |               |               |               |               | TOTAL    |
|---------------------|--|---------|-------------|---------------|---------------|---------------|---------------|----------|
|                     | None                                   | \$1-500 | \$501-1,000 | \$1,001-2,000 | \$2,001-3,000 | \$3,001-4,000 | \$4,001-5,000 | \$5,001+ |
| Business            |  |         |             |               |               |               |               |          |
| Full-time: Master's | 83                                     | 8       | 13          | 19            | 5             | -             | -             | -        |
| Doctoral            | -                                      | -       | -           | -             | -             | -             | -             | -        |
| Total               | 83                                     | 8       | 13          | 19            | 5             | -             | -             | -        |
| Other               |  |         |             |               |               |               |               |          |
| Full-time: Master's |  |         |             |               |               |               |               |          |
| Doctoral            |  |         |             |               |               |               |               |          |
| Total               |  |         |             |               |               |               |               |          |

Other

Full-time: Master's  
Doctoral  
Total

- Notes: 1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).
2. Enrolment basis: Student numbers enrolled: "as at" December 1st of each year.
3. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programmes at Ontario Universities in 1969-70 ----" (C.P.U.O. Research Division, May 11, 1970).
4. Support levels should be reported on an annual basis, i.e. in relation to an entire academic year of the programme for which a student is registered.
5. Total students reported should be identical with those reported on Form CUA-70-A.



- Notes:
1. Do not include "qualifying year" students (as this term is defined in the Report on the Counting of Graduate Students).
  2. Enrolment basis: Student numbers enrolled: "as at" December 1st of each year.
  3. Discipline areas are as defined in "Survey of Citizenship of Graduate Students Enrolled in Master's and Doctoral Degree Programs at Ontario Universities in 1969-70 ----" (C.P.U.O. Research Division, May 11, 1970).
  4. Support levels should be reported on an annual basis, i.e. in relation to an entire academic year of the program for which a student is registered.



1(c)i

University's attitude regarding continuing differentiation between  
general and honours programs

The Senate Committee on Undergraduate Education (established October, 1969) has concerned itself with the problem and will report subsequently. It is University policy to develop general programs that will have the same call upon our resources as honours programs whether or not the current differentiation between the two continues. With this in mind we have recently taken steps to strengthen our general course programs. As an example of this, faculties have supported the establishment of areas studies and interdisciplinary courses. History has introduced a three-year Canadian Studies option for prospective elementary and secondary school teachers, a program which will be integrated with classes offered by other departments (e.g., French, Fine Arts, Political Science, Economics, etc.). There has been equal concern to safeguard the quality of the honours programs. The question of differentiation will be closely debated during the ensuing academic year.





1(c)ii

University comment on the effects of the adoption of a single weight for Arts and Science students for operating grant purposes

The University strongly opposes the adoption of a single weight for Arts and Science students in the Operating Grants Formula. We recognize that formula weights do not provide an accurate measure of the relative costs of different programs but we believe that they must not be so inexact that they exercise an influence on academic planning. There is good evidence that, in general, it is considerably more expensive to provide instruction in Science than in Arts. If, then, the two were to be given a common weight it could be very difficult for a university to maintain a Science emphasis even though, for a few institutions in the Province, this might be desirable. If we really believe that there should be diversity within our university system then we must avoid any influence which would tend to make all universities look alike. Furthermore, it would be a very serious matter if an imbalance between formula income and costs for a major academic program were to result in that program becoming de-emphasized in the whole university system.



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported MEDICAL RESIDENTS

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         |                      |                 |
| Physio- and Occupational Therapy |                      |                 |
| Dental Hygiene                   |                      |                 |
| Dip. Public Health Nursing       |                      |                 |
| Medical Interns                  |                      |                 |
| Medical Residents                |                      |                 |
| Nursing                          |                      | *               |
| Pharmacy                         |                      | *               |
| Hospital Administration          |                      | *               |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
|                              | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   |                |                |                |                |                |
|                              | (ii) Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)      |                |                |                |                |                |
| <u>162</u>                   |  | <u>201</u>     | <u>235</u>     | <u>265</u>     | <u>291</u>     | <u>330</u>     |
|                              | (iii) Total Graduate (Fall Term)   |                |                |                |                |                |
|                              | (iv) Total Full-time Enrolment<br>(ii) plus (iii)  |                |                |                |                |                |
| <u>162</u>                   |  | <u>201</u>     | <u>235</u>     | <u>265</u>     | <u>291</u>     | <u>330</u>     |
|                              | (v) F. T. E. of Part-time Enrolment using Formula Conversion Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
|                              | (vi) F. T. E. Enrolment<br>(iv) plus (v)   |                |                |                |                |                |
| <u>162</u>                   |  | <u>201</u>     | <u>235</u>     | <u>265</u>     | <u>291</u>     | <u>330</u>     |
|                              | (vii) Total Basic Income Units under Formula (i. e. Total Weighted Enrolment)                                      |                |                |                |                |                |
| <u>405</u>                   | 2 1/2 units  | <u>502 1/2</u> | <u>587</u>     | <u>662</u>     | <u>727</u>     | <u>825</u>     |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them).



# HEALTH SCIENCES PROGRAMS LONG-TERM ENROLMENT DATA

1974-75

Health Sciences Program Reported BIOCHEMISTRY (Graduate Program)

## Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        |                      |                 |
| Hygiene and Public Health        |                      |                 |
| Medicine                         |                      |                 |
| Physio- and Occupational Therapy |                      |                 |
| Dental Hygiene                   |                      |                 |
| Dip. Public Health Nursing       |                      |                 |
| Medical Interns                  |                      |                 |
| Medical Residents                |                      |                 |
| Nursing                          |                      |                 |
| Pharmacy                         |                      |                 |
| Hospital Administration          |                      |                 |
| Optometry                        |                      |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u> |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|----------------|--|----------------|----------------|----------------|----------------|----------------|
| (Estimate)     |  |                |                |                |                |                |
|                | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   |                |                |                |                |                |
|                | (ii) Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)            |                |                |                |                |                |
| M. Sc. 10      | (iii) Total Graduate - M. Sc.  | 10             | 9              | 8              | 9              | 9              |
| Ph. D. 6       | (Fall Term) Ph. D.   | 10             | 16             | 19             | 18             | 18             |
| 16             |  | 20             | 25             | 27             | 27             | 27             |
| 16             | (iv) Total Full-time Enrolment<br>(ii) plus (iii)  | 20             | 25             | 27             | 27             | 27             |
|                | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| 16             | (vi) F. T. E. Enrolment<br>(iv) plus (v)   | 20             | 25             | 27             | 27             | 27             |
| M. Sc. 40      | (vii) Total Basic Income Units - M. Sc   | 40             | 36             | 32             | 36             | 36             |
| Ph. D. 36      | Under Formula (i. e. - Ph. D   | 60             | 96             | 114            | 108            | 108            |
| 76             | Total Weighted Enrolment)*   | 100            | 132            | 146            | 144            | 144            |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):

\*M. Sc. 4 units  
Ph. D. 6 units



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported MEDICAL SCIENCES (Graduate Program)

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    |                 |
| Dip. Public Health Nursing       | *                    |                 |
| Medical Interns                  | *                    |                 |
| Medical Residents                | *                    |                 |
| Nursing                          | *                    | *               |
| Pharmacy                         | *                    | *               |
| Hospital Administration          |                      |                 |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |   | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|---|----------------|----------------|----------------|----------------|----------------|
|                              | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)  |                |                |                |                |                |
|                              | (ii) Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)               |                |                |                |                |                |
| M.Sc. 8                      | (iii) Total Graduate - M. Sc.   | 8              | 8              | 9              | 10             | 10             |
| Ph. D. 8                     | (Fall Term) - Ph. D.  | 10             | 12             | 14             | 14             | 15             |
| 16                           |   | 18             | 20             | 23             | 24             | 25             |
| 16                           | (iv) Total Full-time Enrolment<br>(ii) plus (iii)   | 18             | 20             | 23             | 24             | 25             |
|                              | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer<br>School" Graduate Students) |                |                |                |                |                |
| 16                           | (vi) F. T. E. Enrolment<br>(iv) plus (v)  | 18             | 20             | 23             | 24             | 25             |
| M. Sc. 32                    | (vii) Total Basic Income Units - M. Sc  | 32             | 32             | 36             | 40             | 40             |
| Ph. D. 48                    | Under Formula (i. e. - Ph. D  | 60             | 72             | 84             | 84             | 90             |
| 80                           | Total Weighted Enrolment)*  | 92             | 104            | 120            | 124            | 130            |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):

\*M. Sc. 4 units  
Ph. D. 6 units

Finance Branch





HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported NURSING

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    |                 |
| Dip. Public Health Nursing       | *                    |                 |
| Medical Interns                  | *                    |                 |
| Medical Residents                | *                    |                 |
| Nursing                          | *                    | *               |
| Pharmacy                         | *                    | *               |
| Hospital Administration          |                      | *               |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
| <u>64</u>                    | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   | <u>72</u>      | <u>72</u>      | <u>72</u>      | <u>72</u>      | <u>72</u>      |
| <u>175</u>                   | (ii) Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)            | <u>201</u>     | <u>239</u>     | <u>250</u>     | <u>261</u>     | <u>261</u>     |
| <u>-</u>                     | (iii) Total Graduate<br>(Fall Term)  | <u>-</u>       | <u>-</u>       | <u>-</u>       | <u>10</u>      | <u>22</u>      |
| <u>175</u>                   | (iv) Total Full-time Enrolment<br>(ii) plus (iii)  | <u>201</u>     | <u>239</u>     | <u>250</u>     | <u>271</u>     | <u>283</u>     |
|                              | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| <u>175</u>                   | (vi) F. T. E. Enrolment<br>(iv) plus (v)   | <u>201</u>     | <u>239</u>     | <u>250</u>     | <u>271</u>     | <u>283</u>     |
| <u>350</u>                   | (vii) Total Basic Income Units<br>Under Formula (i. e. Total Weighted Enrolment) - 2 units<br>Graduate - 3 units         | <u>402</u>     | <u>478</u>     | <u>500</u>     | <u>552</u>     | <u>588</u>     |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported MEDICINE

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    |                 |
| Dip. Public Health Nursing       | *                    |                 |
| Medical Interns                  |                      |                 |
| Medical Residents                |                      |                 |
| Nursing                          |                      | *               |
| Pharmacy                         | *                    | *               |
| Hospital Administration          |                      | *               |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
|                              | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   |                |                |                |                |                |
| <u>40</u>                    |  | <u>64</u>      | <u>64</u>      | <u>64</u>      | <u>64</u>      | <u>64</u>      |
|                              | (ii) Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)            |                |                |                |                |                |
| <u>60</u>                    |  | <u>124</u>     | <u>168</u>     | <u>192</u>     | <u>192</u>     | <u>192</u>     |
|                              | (iii) Total Graduate<br>(Fall Term)  |                |                |                |                |                |
|                              |  |                |                |                |                |                |
|                              | (iv) Total Full-time Enrolment<br>(ii) plus (iii)  |                |                |                |                |                |
| <u>60</u>                    |  | <u>124</u>     | <u>168</u>     | <u>192</u>     | <u>192</u>     | <u>192</u>     |
|                              | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
|                              |  |                |                |                |                |                |
|                              | (vi) F. T. E. Enrolment<br>(iv) plus (v)   |                |                |                |                |                |
| <u>60</u>                    |  | <u>124</u>     | <u>168</u>     | <u>192</u>     | <u>192</u>     | <u>192</u>     |
|                              | (vii) Total Basic Income Units<br>Under Formula (i. e. Total Weighted Enrolment)*  |                |                |                |                |                |
| <u>350</u>                   |  | <u>770</u>     | <u>1,100</u>   | <u>1,280</u>   | <u>1,280</u>   | <u>1,280</u>   |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):

\*1st year 5 units  
2nd & 3rd years 7 1/2 units



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported MEDICAL INTERNS

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    |                 |
| Dip. Public Health Nursing       | *                    |                 |
| Medical Interns                  | *                    |                 |
| Medical Residents                | *                    |                 |
| Nursing                          | *                    | *               |
| Pharmacy                         | *                    | *               |
| Hospital Administration          | *                    | *               |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |   | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|---|----------------|----------------|----------------|----------------|----------------|
|                              | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)  |                |                |                |                |                |
|                              | (ii) Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)               |                |                |                |                |                |
| <u>51</u>                    |   | <u>66</u>      | <u>68</u>      | <u>71</u>      | <u>73</u>      | <u>96</u>      |
|                              | (iii) Total Graduate<br>(Fall Term)   |                |                |                |                |                |
|                              | (iv) Total Full-time Enrolment<br>(ii) plus (iii)   |                |                |                |                |                |
| <u>51</u>                    |   | <u>66</u>      | <u>68</u>      | <u>71</u>      | <u>73</u>      | <u>96</u>      |
|                              | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer<br>School" Graduate Students) |                |                |                |                |                |
|                              | (vi) F. T. E. Enrolment<br>(iv) plus (v)  |                |                |                |                |                |
| <u>51</u>                    |   | <u>66</u>      | <u>68</u>      | <u>71</u>      | <u>73</u>      | <u>96</u>      |
|                              | (vii) Total Basic Income Units<br>Under Formula (i. e. Total<br>Weighted Enrolment)   |                |                |                |                |                |
| <u>127</u>                   | 2 1/2 units   | <u>165</u>     | <u>170</u>     | <u>177</u>     | <u>182</u>     | <u>240</u>     |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported HEALTH RELATED PROFESSIONS\*

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    |                 |
| Dip. Public Health Nursing       | *                    |                 |
| Medical Interns                  | *                    |                 |
| Medical Residents                | *                    |                 |
| Nursing                          | *                    | *               |
| Pharmacy                         | *                    | *               |
| Hospital Administration          | *                    |                 |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
| (i)                          | Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   | -              | -              | 20             | 30             | 30             |
| (ii)                         | Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)             | -              | -              | 20             | 40             | 50             |
| (iii)                        | Total Graduate<br>(Fall Term)  |                |                |                |                |                |
| (iv)                         | Total Full-time Enrolment<br>(ii) plus (iii)   | -              | -              | 20             | 40             | 50             |
| (v)                          | F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| (vi)                         | F. T. E. Enrolment<br>(iv) plus (v)  | -              | -              | 20             | 40             | 50             |
| (vii)                        | Total Basic Income Units<br>Under Formula (i. e. Total Weighted Enrolment)<br>2 units                                | -              | -              | 40             | 80             | 100            |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):

\*2-year postdiploma program for Physiotherapy and Occupational Therapy.





HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported CLINICAL BEHAVIOURAL SCIENCES

Instructions:

1. Program

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    | *               |
| Dip. Public Health Nursing       | *                    | *               |
| Medical Interns                  | *                    | *               |
| Medical Residents                | *                    | *               |
| Nursing                          | *                    | *               |
| Pharmacy                         | *                    | *               |
| Hospital Administration          | *                    | *               |
| Optometry                        | *                    | *               |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
|                              | (i) Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   |                |                |                |                |                |
|                              | (ii) Total Full-time Undergraduate<br>(Including diploma and other non-degree and make-up or qualifying year)            |                |                |                |                |                |
| <u>24</u>                    | (iii) Total Graduate<br>(Fall Term)  | <u>30</u>      | <u>35</u>      | <u>40</u>      | <u>40</u>      | <u>40</u>      |
| <u>24</u>                    | (iv) Total Full-time Enrolment<br>(ii) and (iii)   | <u>30</u>      | <u>35</u>      | <u>40</u>      | <u>40</u>      | <u>40</u>      |
|                              | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| <u>24</u>                    | (vi) F. T. E. Enrolment<br>(iv) plus (v)   | <u>30</u>      | <u>35</u>      | <u>40</u>      | <u>40</u>      | <u>40</u>      |
| <u>72</u>                    | (vii) Total Basic Income Units<br>Under Formula (i. e. Total Weighted Enrolment)<br>3 units                              | <u>90</u>      | <u>105</u>     | <u>120</u>     | <u>120</u>     | <u>120</u>     |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported HEALTH SERVICES ADMINISTRATION

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | .                    | .               |
| Medicine                         | .                    | .               |
| Physio- and Occupational Therapy | .                    | .               |
| Dental Hygiene                   | .                    | .               |
| Dip. Public Health Nursing       | .                    | .               |
| Medical Interns                  | .                    | .               |
| Medical Residents                | .                    | .               |
| Nursing                          | .                    | .               |
| Pharmacy                         | .                    | .               |
| Hospital Administration          | .                    | .               |
| Optometry                        | .                    | .               |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
| (i)                          | Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   |                |                |                |                |                |
| (ii)                         | Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)             |                |                |                |                |                |
| (iii)                        | Total Graduate<br>(Fall Term)  | -              | 15             | 35             | 40             | 40             |
| (iv)                         | Total Full-time Enrolment<br>(ii) plus (iii)   | -              | 15             | 35             | 40             | 40             |
| (v)                          | F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| (vi)                         | F. T. E. Enrolment<br>(iv) plus (v)  | -              | 15             | 35             | 40             | 40             |
| (vii)                        | Total Basic Income Units<br>Under Formula (i. e. Total Weighted Enrolment)<br>3 units                                | -              | 45             | 105            | 120            | 120            |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):



HEALTH SCIENCES PROGRAMS  
LONG-TERM ENROLMENT DATA  
TO 1975-76

Health Sciences Program Reported DESIGN, MEASUREMENT & EVALUATION  
(Graduate Program)

Instructions:

1. Programs of study in the Health Sciences are listed below:

|                                  | <u>Undergraduate</u> | <u>Graduate</u> |
|----------------------------------|----------------------|-----------------|
| Dentistry                        | *                    | *               |
| Hygiene and Public Health        | *                    | *               |
| Medicine                         | *                    | *               |
| Physio- and Occupational Therapy | *                    | *               |
| Dental Hygiene                   | *                    |                 |
| Dip. Public Health Nursing       | *                    |                 |
| Medical Interns                  | *                    |                 |
| Medical Residents                | *                    |                 |
| Nursing                          | *                    |                 |
| Pharmacy                         | *                    |                 |
| Hospital Administration          | *                    |                 |
| Optometry                        | *                    |                 |

2. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D. U. A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st university year subsequent to Grade 13 into undergraduate degree programs only.

| <u>1970-71</u><br>(Estimate) |  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|------------------------------|--|----------------|----------------|----------------|----------------|----------------|
| (i)                          | Full-time "Freshman Intake"<br>(i. e. 1st Year Undergraduate Degree)   |                |                |                |                |                |
| (ii)                         | Total Full-time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)                 |                |                |                |                |                |
| <u>1</u>                     | (iii) Total Graduate - M. Sc.<br>(Fall Term)   | <u>4</u>       | <u>7</u>       | <u>10</u>      | <u>14</u>      | <u>14</u>      |
| <u>1</u>                     | (iv) Total Full-time Enrolment<br>(ii) plus (iii)  | <u>4</u>       | <u>7</u>       | <u>10</u>      | <u>14</u>      | <u>14</u>      |
|                              | (v) F. T. E. of Part-time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| <u>1</u>                     | (vi) F. T. E. Enrolment<br>(iv) plus (v)   | <u>4</u>       | <u>7</u>       | <u>10</u>      | <u>14</u>      | <u>14</u>      |
| <u>4</u>                     | (vii) Total Basic Income Units<br>Under Formula (i. e. Total Weighted Enrolment)<br>4 units                              | <u>16</u>      | <u>28</u>      | <u>40</u>      | <u>56</u>      | <u>56</u>      |

Explanatory comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969. (Please deal with both the quantitative parameters of these variations and the reasons for them):



1(d)ii

### Health Sciences Programs

#### Relation of Enrolment Forecasts to Provincial Need

Enrolment in the Bachelor of Science Nursing program has been increased from an entering class of thirty to sixty and with the availability of the full facilities of the Health Sciences Centre will reach its enrolment target of seventy-five in the entering class. The clinical resources of the Health Sciences Centre will not be adequate to meet all the needs of this program and it will be necessary to continue to use a variety of clinical facilities elsewhere in the community. Any substantial further enlargement of the undergraduate program would require additional facilities and staff beyond the increments currently projected.

Postgraduate specialization in Nursing is under careful consideration. A graduate studies program at the Master's level is proposed for 1974. Immediate consideration is being given to a Nurse Practitioner Training Program.

The undergraduate program in Medicine will reach its enrolment target of sixty-four students in the entering class in September, 1971 provided that the program can be accommodated in the new facilities of the Health Sciences Centre on campus. The full impact on total enrolment will not be felt until 1973 when all three academic years of sixty-four students are receiving concurrent instruction on a year-round basis. After review of all programs in the Faculty of Medicine, highest priority for further expansion of enrolment has been accorded to the undergraduate program. Additional faculty members would be required but until there has been more experience with the unusual instructional methods and the emphasis on community health care in the curriculum, it is not possible to predict what additional facilities would be required to cope with a further expansion of enrolment.

The emphasis placed on the graduate studies program in Medical Sciences has been decreased in terms of size of enrolment. The interdisciplinary approach to Medical Sciences would seem to be validated, however, in terms of flexibility in adjusting to changing





manpower requirements for personnel trained in graduate Medical Sciences. The subject areas of emphasis in the graduate studies program appear to be those of greatest need, in particular the proposed program on Health Care Design, Measurement and Evaluation.

The growth of the postgraduate training program for interns and residents is close to the original forecast in terms of total enrolment. Greatest emphasis is being given to the training of primary physicians. Training resources are being developed at hospitals and in the community for this purpose. In other areas where there is a serious possibility of overproduction of specialists, the size of the training programs are being limited and combined programs with other university centres considered (e.g. Clinical Neurological Sciences). Depending on the extent of student interest it may be possible to further expand postgraduate training opportunities for physicians interested in primary community care. This will require additional faculty supervisors and the establishment of community health clinics as a suitable environment for clinical training in relation to other health personnel.

The response to the first year of the diploma program in Clinical Behavioural Sciences has been very positive from both trainees and health care agencies. An increase in enrolment from twenty-four to forty per class is forecast over the next three years without addition of facilities but with a requirement for additional instructional and supervisory staff. This program which upgrades the skills of established, mature health workers who are based in the geographic region appears to be a satisfactory approach to an urgent manpower requirement which could not be met by introducing new, full-length or formal training programs.

The Faculty continues to receive a very large number of requests from other universities in Ontario to provide field experience for their Master's candidates in Social Work.

There is still an urgent need for the training of personnel who will fulfill the administrative role in the management and evaluation of health services. The academic base of the program under consideration would draw on the Social Sciences, in particular Economics, Business and Engineering, as well as the Health Sciences. Emphasis in the program would be on regional organization and community health services, rather than hospital administration, and particular attention would be given to measurement and evaluation of



health services, using the growing resources in Clinical Epidemiology and Biostatistics.

The two-year postdiploma program for physiotherapy and occupational therapy has been delayed pending the establishment of the three-year primary program at Mohawk College of Applied Arts and Technology. No change in enrolment forecast is envisaged at this time.



INSTITUTION: McMASTER UNIVERSITY  
☐ Program: DIVISION OF HEALTH SCIENCES  
☐ Not assignable to a program

FINANCING OF HEALTH SCIENCES PROGRAMS  
☐ Teaching service re students not enrolled in Health Sciences programs (net)  
☒ Consolidation of Health Sciences revenues and expenditures

Form CUA-70-G

Assumed basic income unit value  
Full-time equivalent students  
Basic income units

|    | 1969-70 | 1970-71  | 1971-72  | 1972-73  | 1973-74  | 1974-75  | 1975-76  |
|----|---------|----------|----------|----------|----------|----------|----------|
| \$ | 1,550   | \$ 1,650 | \$ 1,730 | \$ 1,730 | \$ 1,730 | \$ 1,730 | \$ 1,730 |

REVENUE

Basic operating income (Operating Grants Formula)  
Support received from O.H.S.C.  
Other Provincial operating grants  
Assisted/sponsored research funds  
Trust and endowment funds  
Fees for physicians' services  
All other revenue (itemize by category) University Funds  
Funds to be obtained

Total Revenue

EXPENDITURE

Financed from university's operating income:  
i Direct faculty operating expenditures -  
(a) Academic salaries  
(b) Other objects of expenditure  
ii Library and computing centre expenditures  
iii General university overhead  
Total

Financed from funds other than university's operating income:  
i Direct faculty operating expenditures -  
(a) Academic salaries  
(b) Other objects of expenditure  
ii Assisted/sponsored research  
iii Other applications of special funds (itemize)  
Total

Total Expenditure

|           |           |           |           |           |            |            |
|-----------|-----------|-----------|-----------|-----------|------------|------------|
| 1,323,000 | 2,123,000 | 3,623,000 | 4,671,000 | 5,453,000 | 5,825,000  | 6,192,000  |
| 653,400   | 804,800   | 1,092,000 | 1,200,000 | 1,200,000 | 1,200,000  | 1,200,000  |
| 1,850,000 | 1,800,000 | 1,113,000 | 445,000   | --        | --         | --         |
| 2,068,293 | 2,581,504 | 2,710,000 | 2,845,000 | 2,985,000 | 3,135,000  | 3,295,000  |
| 15,000    | 15,000    | 15,000    | 15,000    | 15,000    | 15,000     | 15,000     |
| 162,000   | --        | --        | --        | --        | --         | --         |
| 362,000   | 254,000   | --        | --        | --        | --         | --         |
| --        | --        | "X"       | "X"       | "X"       | "X"        | "X"        |
| 6,433,693 | 7,578,304 | 8,553,000 | 9,176,000 | 9,653,000 | 10,175,000 | 10,702,000 |
|           |           | + "X"     | + "X"     | + "X"     | + "X"      | + "X"      |

|           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1,506,590 | 1,466,200 | 2,000,000 | 2,300,000 | 2,550,000 | 2,850,000 | 3,150,000 |
| 1,103,946 | 1,606,800 | 2,144,000 | 2,285,000 | 2,385,000 | 2,585,000 | 2,785,000 |
| 156,805   | 171,000   | 209,000   | 250,000   | 250,000   | 250,000   | 250,000   |
| 767,659   | 933,000   | "Y"       | "Y"       | "Y"       | "Y"       | "Y"       |
| 3,535,000 | 4,177,000 | 4,353,000 | 4,835,000 | 5,185,000 | 5,685,000 | 6,185,000 |
|           |           | + "Y"     | + "Y"     | + "Y"     | + "Y"     | + "Y"     |

|           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 653,400   | 804,800   | 1,092,000 | 1,200,000 | 1,200,000 | 1,200,000 | 1,200,000 |
| 177,000   | 15,000    | 15,000    | 15,000    | 15,000    | 15,000    | 15,000    |
| 2,068,293 | 2,581,504 | 2,710,000 | 2,845,000 | 2,985,000 | 3,135,000 | 3,295,000 |
| 2,898,693 | 3,401,304 | 3,817,000 | 4,060,000 | 4,200,000 | 4,350,000 | 4,510,000 |

|           |           |           |           |           |            |            |
|-----------|-----------|-----------|-----------|-----------|------------|------------|
| 6,433,693 | 7,578,304 | 8,553,000 | 9,176,000 | 9,653,000 | 10,175,000 | 10,702,000 |
|           |           | + "X"     | + "X"     | + "X"     | + "X"      | + "X"      |



1(d)iv

Outline of capital costs of University projects in the Health Sciences developed during the past five years and/or contemplated for the next five years

Completed Project

Interim accommodation for the Health Sciences Centre (Project Mc38 H.S.) was completed in 1967 to house teaching and research functions until the Health Sciences Centre was constructed.

Project in Progress

The Health Sciences Centre is under construction and involves the following projects: Functional Planning (Mc36 H.S.), Building Project (Mc37 H.S.), and appropriate shares of the University site services.

Regular reports are being submitted to the Technical Working Party and to the Senior Co-ordinating Committee. They are so voluminous we have not repeated this information at this juncture.





1(d)v

Outline of uses of Health Sciences facilities for university programs  
other than Health Sciences programs

In the absence of permanent Health Sciences facilities on campus there is no significant use of the temporary quarters for Health Sciences by other University programs.

On completion of the Health Sciences Centre it is anticipated that the lecture theatres, seminar rooms, teaching laboratories (particularly in Anatomy and Biochemistry) and the educational resources, such as the Biomedical Library, will be used by students in Psychology, Biology, Biochemistry and Physical Education for instruction in the basic Medical Sciences in the same way as general University resources will be made available to the Health Sciences. Limited use of the academic and clinical facilities of the Health Sciences Centre may be anticipated from other groups in the Natural Sciences, Social Sciences, Engineering and Business as part of collaborative programs in research or selected educational options. The animal facilities, computation centre, biomedical library, audio-visual production and storage will be primarily used by Health Sciences programs but will also be made available as required for other University needs and as regional health resources. Regional use of the biomedical library and audio-visual services already includes the other Hamilton hospitals and will also relate to health professional programs at Mohawk College of Applied Arts and Technology.



| Years 1 - 6 | Undergraduate | X |
|-------------|---------------|---|
| Year 7      | Graduate      |   |

SUMMARY OF CLASS SIZE SURVEY DATA FOR 1969  
REPORTED TO THE COMMITTEE OF PRESIDENTS  
FREQUENCY DISTRIBUTION OF CLASS SECTIONS

Form CUA-70-H

University: McMASTER UNIVERSITY

| Section Size                | 0-3 |    |    | 4-10 |    |    | 11-20 |    |     | 21-40 |    |     | 41-80 |    |    | 81-160 |    |    | 161-300 |    |    | 301+ |    |    | Average Section Size |    |    | Total Student Contact Hours Per Week | Total F.T.E. Enrolment Fall Term | Total Contact Hours/Wk Per Student |      |
|-----------------------------|-----|----|----|------|----|----|-------|----|-----|-------|----|-----|-------|----|----|--------|----|----|---------|----|----|------|----|----|----------------------|----|----|--------------------------------------|----------------------------------|------------------------------------|------|
| Discipline Area             | Le  | La | Tu | Le   | La | Tu | Le    | La | Tu  | Le    | La | Tu  | Le    | La | Tu | Le     | La | Tu | Le      | La | Tu | Le   | La | Tu | Le                   | La | Tu | a) 11,100                            | b) 9,500                         |                                    |      |
| Pure Humanities             | 16  | 4  | 3  | 46   | 1  | 10 | 68    | 43 | 112 | 82    | 2  | 45  | 18    | 3  | 3  | 3      | 3  | 3  | 30      | 16 | 18 |      |    |    |                      |    |    |                                      |                                  |                                    |      |
| Applied Humanities          |     | 2  |    | 15   |    |    | 4     | 3  |     | 10    |    |     |       |    |    |        |    |    | 27      | 10 | 37 |      |    |    |                      |    |    | a) 560                               | b) 690                           |                                    |      |
| Pure Social Sciences        | 2   |    | 3  | 9    | 3  | 19 | 18    | 4  | 305 | 21    | 9  | 54  | 36    | 1  | 14 | 7      | 7  | 7  | 67      | 38 | 17 |      |    |    |                      |    |    | a) 14,700                            | b) 20,300                        |                                    |      |
| Applied Social Sciences     | 2   |    |    | 2    |    |    | 6     |    |     | 6     |    | 2   | 13    | 4  |    |        |    |    | 12      | 2  | 25 |      |    |    |                      |    |    | a) ---                               | b) 4,600                         |                                    |      |
| Pure Biological Sciences    | 2   |    |    | 5    | 3  |    | 3     | 5  |     | 6     | 11 |     | 2     |    |    |        |    |    | 51      | 20 |    |      |    |    |                      |    |    | a) 1,400                             | b) 4,540                         |                                    |      |
| Applied Biological Sciences |     |    |    |      |    |    |       |    |     | 14    |    |     |       |    |    |        |    |    | 28      | 29 | 8  |      |    |    |                      |    |    | a) 530                               | b) 1,400                         |                                    |      |
| Pure Physical Sciences      | 4   |    |    | 21   | 9  |    | 21    | 23 | 9   | 25    | 11 | 84  | 17    | 7  | 7  | 2      | 2  | 46 | 35      | 24 |    |      |    |    |                      |    |    | a) 11,400                            | b) 11,260                        |                                    |      |
| Applied Physical Sciences   | 8   | 8  |    | 19   | 11 | 1  | 5     | 6  | 27  | 23    | 27 | 5   | 10    | 1  | 1  |        |    |    | 33      | 22 | 22 |      |    |    |                      |    |    | a) 2,260                             | b) 8,600                         |                                    |      |
| Total                       | 34  | 15 | 8  | 102  | 47 | 46 | 125   | 89 | 453 | 182   | 64 | 191 | 91    | 30 | 1  | 12     | 1  | 49 | 26      | 18 |    |      |    |    |                      |    |    | a) 46,950                            | b) 91,390                        | 2,046                              | 22.9 |

Notes:

- 1) Le - Lecture; La - Laboratory; Tu - Tutorials and Seminars
- 2) Average Section Size = Total of Course Enrolments ÷ Number of Sections
- (a) Year 1
- (b) Years 2-6

ADDITIONAL NOTES - See following page

Qualifying Year:  
Total F.T.E.:

21  
5,718



|                         |   |
|-------------------------|---|
| Years 1-6 Undergraduate |   |
| Year 7 Graduate         | X |

SUMMARY OF CLASS SIZE SURVEY DATA FOR 1969  
REPORTED TO THE COMMITTEE OF PRESIDENTS  
FREQUENCY DISTRIBUTION OF CLASS SECTIONS

Form CUA-70-H

UNIVERSITY: MCMASTER UNIVERSITY

| Section Size                | 0-3 | 4-10 | 11-20 | 21-40 | 41-80 | 81-160 | 161-300 | 301+ | Average Section Size | Total Student Contact Hours Per Week | Total F.T.E. Enrollment Fall Term | Total Contact Hrs/Wk Per Student |
|-----------------------------|-----|------|-------|-------|-------|--------|---------|------|----------------------|--------------------------------------|-----------------------------------|----------------------------------|
| Dis-<br>cipline<br>Area     |     |      |       |       |       |        |         |      |                      |                                      |                                   |                                  |
| Pure Humanities             | 32  | 32   | 11    |       |       |        |         |      | 6                    | 1,195                                |                                   |                                  |
| Applied Humanities          |     |      |       |       |       |        |         |      |                      |                                      |                                   |                                  |
| Pure Social Sciences        | 27  | 39   | 17    | 4     |       |        |         |      | 8                    | 1,651                                |                                   |                                  |
| Applied Social Sciences     |     | 3    | 15    | 9     | 1     |        |         |      | 19                   | 783                                  |                                   |                                  |
| Pure Biological Sciences    | 2   | 4    | 1     |       |       |        |         |      | 6                    | 128                                  |                                   |                                  |
| Applied Biological Sciences | 2   |      |       |       |       |        |         |      | 1                    | 7                                    |                                   |                                  |
| Pure Physical Sciences      | 13  | 21   | 11    | 5     |       |        |         |      | 9                    | 867                                  |                                   |                                  |
| Applied Physical Sciences   | 34  | 37   | 6     | 2     |       |        |         |      | 5                    | 925                                  |                                   |                                  |
| Total                       | 110 | 136  | 71    | 20    | 1     |        |         |      | 8                    | 5,556                                | 1,063                             | 5.2                              |

Notes: 1) Le - Lecture; La - Laboratory; Tu - Tutorials and Seminars.

2) Average Section Size = Total of Course Enrollments ÷ Number of Sections.

Note: McMaster University has no prescribed format for graduate classes and therefore no differentiation has been made in this report.

The total number of courses shown is the total number of half courses.

ADDITIONAL NOTES - See following page.



NOTES TO FORM CUA-70-H

1. Enrolment figures are those of 1 December 1969, for Term I classes only.
2. Enrolment in Divinity College classes and Faculty of Medicine classes are not included.
3. Undergraduate class enrolment totals includes:
  - i) Makeup students
  - ii) Extension students taking normal daytime undergraduate courses





## FACTORS AFFECTING LEVELS OF UNIVERSITY SUPPORT

### 2(a)ii

#### New approaches to teaching and learning being considered by the University and the possible effects of such on class size and operating costs

Teaching committees concerned with improvement of teaching methods and careful assessment of the teaching performance of faculty have been established in every Faculty. Significant advances have been made in most Departments.

For the academic year 1970-71, the Faculty of Social Sciences is undertaking an experimental program entitled "Toward the Year 2000". The program is limited to a group of fifty Year I Social Sciences students and enrolment in it will be in lieu of enrolment in three of the five classes which constitute the normal first year load.

The content of the program will be structured around the theme of man's attempt to come to terms with his social environment through the accumulation of knowledge, the evolution of social institutions, and the development of instruments of social change and control.

The structure of the program will involve extensive reading, along with written work and oral participation in group and individual tutorial sessions. The full body of participating students and the five participating faculty members will meet for regular weekly sessions.

The sequence of topics in the program will be as follows:

- I. Predictive Visions of the Future
- II. Utopian Visions of the Future
- III. A Reflective View of the Present
- IV. A Critical View of the Present
- V. Individual Freedom and Social Obligation



## VI. Approaches to the Future

## VII. The Advantage of Vantage Points

## VIII. A Reassessment of the Future

Also, it is stressed that the program is intended as an integral part of a student's full university experience. It is not an attempt to provide answers but to raise questions and to develop critical skills of insight and analysis early in the career of the university student. It will, however, introduce the student to the fundamental issues and approaches which constitute the core of Social Sciences, issues and approaches which transcend the boundaries of individual disciplines. Participation in the program will count as eighteen credits (three full classes) toward requirements for graduation and in most Social Sciences Departments it is acceptable as fulfilling first year requirements for entry into Year II degree programs.

The Department of Sociology is experimenting with the admission of students who have successfully completed Sociology 1a6 into most Year II and Year III classes. It is expected that this measure, by providing a wider choice of classes, will help to reduce the size of classes which is an acute problem in Sociology. The Department of Physical Education has modified its Year I program by substantially reducing the activity requirements and adding an academic component. The effect is to have the Year I program that would allow both for a more effective use of faculty resources, and an opportunity to screen candidates for the full Combined Arts and Physical Education (CAPE) program.

The Department of English has instituted a system whereby almost every instructor is responsible for a comparatively small section of freshmen aided by graduate teaching fellows. There have been indications that the quality of instruction has improved and that the morale of the freshmen class and its general performance have heightened.

The Department of Philosophy will replace its freshmen survey class with three new introductory classes, each with a different orientation and each involving three faculty members in a team teaching experience.



The Department of Psychology has found that for its very large classes the most effective teaching is accomplished by combining television lectures with tutorials led by graduate students. Classes structured in this way are offered on a continuous basis throughout the day. Chemistry has also made tapes of laboratory classes available for reviewing by students in an audio-visual room. In addition, televised laboratory instruction and demonstration have greatly increased the effectiveness of laboratory classes. During the second term, first term taped classes will be reshown on a scheduled basis.

The Department of Biology has eliminated the traditional Year I survey course in Biology, substituting a series of classes which deal with more specialized aspects of Biology. Students may now choose among classes on Genetics and Evolution, Cellular Physiology, Animal Kingdom, Plant Kingdom, and Ecology.

The problem of very large Year I classes in English, History, Philosophy and Social Sciences has stimulated experiments involving fewer lecture hours and more tutorials. The repeated television-tutorials offered in Psychology and the special arrangements in Chemistry are promising new instructional developments. Concomitantly, the problem of very small Year III and Year IV classes has produced the dual solution of combining some of these classes for the two years and offering them on an alternating basis. Integration of small Evening classes in the part-time degree program with Third Year day classes is expected to produce more stimulating instruction and more responsive students. Thus we are seeking to achieve a variety of class sizes that are both paedagogically effective and economically viable. Similar benefits have been realized by organizing graduate seminars and classes on a cyclical basis. We have regrettably been inhibited by the lack of "seed money" for experimental programs which hold promise of significantly heightened academic performance and morale.





## 2(a)iii

Possible effects of educational technology on class patterns at the University

The use of educational technology, in respect both of materials and services, increased substantially during 1969-70. The use made of the main television system for the production and distribution of lectures as well as for special presentations greatly increased over 1968-69 with heavier enrolment and with greater faculty expertise in the medium.

English has become dissatisfied with mass televised instruction. It prefers smaller lectures and section/tutorial arrangements engaging almost every member of the department in Year I teaching. History has also withdrawn from such television teaching and has devised six separate Year I classes employing a large segment of the teaching faculty in lectures and seminar/tutorials. The Departments of Philosophy, Religion, and Sociology, however, continue to provide Year I instruction on closed circuit television.

Science makes extensive use of the television facilities, in the Departments of Mathematics, Applied Mathematics, Psychology, Physics and Chemistry. Chemistry and Physics use the medium for laboratory instruction, demonstrations, and individual study carrels. The Department of Psychology's combination of television/tutorials which we have described in 2(a)ii will be carefully scrutinized and assessed by other departments during the academic year.

Engineering uses a small television system for drafting instruction and for computer programming instruction.

In the Division of Health Sciences, great emphasis has been given to the production of teaching sets consisting of 35 mm slides with commentary on audio tape, designed for Medical Education and Nursing. Prototype equipment was devised for use in Health Sciences students' carrels. This unit was used regularly by medical students to view and review video tape material and by faculty for visual demonstrations. Television has also been used to teach interviewing techniques and to record special cases for





subsequent study in both Psychiatry and the Faculty of Medicine. Television broadcasting has been used for the continuing education of physicians in the Hamilton region (sponsored by the McMaster Faculty of Medicine and the Hamilton Academy of Medicine).



STATEMENT OF THE FINANCING OF OPERATIONS

|  | 1969-70<br>Actual<br><br>(\$000's) | 1970-71<br>Official<br>Budget<br>(7)<br>(\$000's) | 1971-72<br>Projected<br>(6)<br>(\$000's) |
|--|------------------------------------|---|--|
| All gross expenditures of the University other<br>than on Capital Account  | 38,421                             | 46,052  |  |
| <u>Less:</u> (a) Assisted/Sponsored Research   | 5,961                              | 6,645   |  |
| (b) Principal and interest payments<br>on capital indebtedness   | 2,891                              | 4,545   |  |
| (c) Student aid  | 60                                 | 50  |  |
| (d) Ancillary enterprises<br>(as per Form J)   | 3,514                              | 4,805   |  |
| (e) Costs of programs in education,<br>if any, (Note 1)  | 443                                | 220   |  |
| Total exclusions   | 12,869                             | 16,265  |  |
| Remainder - representing operating expendi-<br>tures eligible for formula and other<br>operating grant support<br>(analysed on page 2) | 25,552                             | 29,787  |  |
| <u>Sources of Financial Support for Above:</u>   |                                    |   |  |
| (a) Basic operating income (weighted<br>enrolment* x unit value)   | 22,093                             | 26,571  |  |
| (b) Other operating grants   | 2,219                              | 1,800   |  |
| (c) Balance  | 1,240                              | 1,416   |  |
| Total (equal to Remainder above)   | 25,552                             | 29,787  |  |

Note 1:

For 1969-70 and 1970-71 deduct amounts representing total allowable operating expenditures taken into account in arriving at grants for teacher education programs. For 1971-72 deduct amount representing 5% escalation in the budget on a per student basis.

\*For 1970-71, official budget figure of weighted enrolment.



## STATEMENT OF THE FINANCING OF OPERATIONS

|   | 1969-70<br>Actual            |   | 1970-71<br>Official<br>Budget |   | 1971-72<br>Projected         |                                      |
|---|------------------------------|---|-------------------------------|---|------------------------------|--------------------------------------|
| 1. <u>Enrolment of the University</u><br><u>weighted in accordance with the</u><br><u>Operating Grants Formula (1)</u>              |                              |   |                               |   |                              |                                      |
| i) Projected (official)   |                              |   | 16,104                        |   |                              |                                      |
| ii) Used in official budget of<br>the University  |                              |   |                               |   |                              |                                      |
| iii) Latest estimate  |                              |   |                               |   |                              |                                      |
| iv) Actual  | 14,439.9                     |   |                               |   |                              |                                      |
|   | Total<br>Amount<br>(\$000's) | Per unit<br>of weight-<br>ed Enrol-<br>ment | Total<br>Amount<br>(\$000's)  | Per unit<br>of weight-<br>ed Enrol-<br>ment (2) | Total<br>Amount<br>(\$000's) | Per unit<br>of weighted<br>Enrolment |
| 2. Total operating expenditures,<br>as per page 1 (5)   | 25,552                       | 1,769.51                                    | 29,787                        | 1,849.66  |                              |                                      |
| Less:   |                              |   |                               |   |                              |                                      |
| i) All academic salaries (3)<br>(full-time, part-time,<br>graduate assistantships<br>and other classroom<br>instructional salaries) | 10,633                       | 736.36                                      | 12,546                        | 779.06  |                              |                                      |
| ii) Fringe Benefits related<br>to above   | 1,208                        | 83.65                                       | 1,312                         | 81.47   |                              |                                      |
| Balance: All other operating<br>expenditures  | 13,711                       | 949.50                                      | 15,929                        | 989.13  |                              |                                      |
| <u>Breakdown of all other Operating</u><br><u>Expenditures:</u>   |                              |   |                               |   |                              |                                      |
| 1. All furniture and equipment  | 458                          | 31.73                                       | 450                           | 27.94   |                              |                                      |
| 2. <u>Library</u>   |                              |   |                               |   |                              |                                      |
| - Library acquisitions  | 845                          | 58.53                                       | 803                           | 49.86   |                              |                                      |
| - Salaries and wages of<br>Library staff  | 915                          | 63.39                                       | 1,153                         | 71.60   |                              |                                      |
| - Fringe benefits related to<br>above   | 85                           | 5.86  | 150                           | 9.31  |                              |                                      |
| 3. <u>Plant maintenance (4)</u>   |                              |   |                               |   |                              |                                      |
| - Salaries and wages  | 1,524                        | 105.53                                      | 1,742                         | 108.17  |                              |                                      |
| - Fringe benefits related to<br>above   | 146                          | 10.08                                       | 222                           | 13.79   |                              |                                      |
| - Other   | 875                          | 60.62                                       | 1,050                         | 65.20   |                              |                                      |
| 4. <u>Remainder</u>   |                              |   |                               |   |                              |                                      |
| - Salaries and wages  | 4,725                        | 327.21                                      | 5,642                         | 350.35  |                              |                                      |
| - Fringe benefits related to<br>above   | 534                          | 36.98                                       | 708                           | 43.96   |                              |                                      |
| - Other objects of expenditure  | 3,604                        | 249.57                                      | 4,009                         | 248.95  |                              |                                      |
| TOTAL (as above)  | 13,711                       | 949.50                                      | 15,929                        | 989.13  |                              |                                      |

## NOTES:

- 1) This, of course, may be greater than the eligible number of basic income units.
- 2) Basis of calculation: weighted enrolment used in official budget of the University.
- 3) To include all academic administrative appointments.
- 4) To include all expenses (except furniture and equipment) included under definitions 18 and 22 (a) of "Instructions, Definitions and Notes Relating to the Completion of the DBS-CAUBO Report on Financial Statistics of Universities and Colleges for 1969".
- 5) By way of supplementary comment, please disclose the University's policies with respect to the use it may make of "reserves" or "appropriations." The effect of such policies and their measurable dollar impact should also be disclosed, in sufficient detail to permit a full understanding of the University's procedures towards arriving at annual operating expenditures.
- 6) The completion of this column is optional.
- 7) That budget which has been adopted by the Board of Governors.



## STATEMENT OF THE FINANCING OF OPERATIONS

EXCLUDING HEALTH SCIENCES

|   | 1969-70<br>Actual            |   | 1970-71<br>Official<br>Budget |   | 1971-72<br>Projected   |
|---|------------------------------|---|-------------------------------|---|--|
| 1. <u>Enrolment of the University</u><br><u>weighted in accordance with the</u><br><u>Operating Grants Formula (1)</u>              |                              |   |                               |   |  |
| i) Projected (official)   |                              |   | 14,817                        |   |  |
| ii) Used in official budget of<br>the University  |                              |   |                               |   |  |
| iii) Latest estimate  |                              |   |                               |   |  |
| iv) Actual  | 13,577.9                     |   |                               |   |  |
|   | Total<br>Amount<br>(\$000's) | Per unit<br>of weight-<br>ed Enrol-<br>ment | Total<br>Amount<br>(\$000's)  | Per unit<br>of weight-<br>ed Enrol-<br>ment (2) | Total<br>Amount<br>(\$000's)<br><br>Per unit<br>of weighted<br>Enrolment<br>% of<br>Increase |
| 2. Total operating expenditures,<br>as per page 1 (5)   | 22,379                       | 1,648.19                                    | 25,864                        | 1,745.56  | 5.90%  |
| Less:   |                              |   |                               |   |  |
| i) All academic salaries (3)<br>(full-time, part-time,<br>graduate assistantships<br>and other classroom<br>instructional salaries) | 9,352                        | 688.76                                      | 11,017                        | 743.54  | 7.95%  |
| ii) Fringe benefits related to<br>above   | 964                          | 71.00                                       | 1,164                         | 78.56   | 10.65%   |
| Balance: All other operating<br>expenditures  | 12,063                       | 888.43                                      | 13,683                        | 923.46  | 3.94%  |
| <u>Breakdown of all other Operating<br/>Expenditures:</u>   |                              |   |                               |   |  |
| 1. <u>All furniture and equipment</u>   | 431                          | 31.74                                       | 384                           | 25.92   | (18.34%)   |
| 2. <u>Library:</u>  |                              |   |                               |   |  |
| - Library acquisitions  | 754                          | 55.53                                       | 720                           | 48.59   | (12.50%)   |
| - Salaries and wages of<br>Library staff  | 872                          | 64.22                                       | 1,103                         | 74.44   | 15.91%   |
| - Fringe benefits related to<br>above   | 80                           | 5.89  | 144                           | 9.72  | 65.02%   |
| 3. <u>Plant maintenance (4)</u>   |                              |   |                               |   |  |
| - Salaries and wages  | 1,417                        | 104.36                                      | 1,594                         | 107.58  | 3.08%  |
| - Fringe benefits related to<br>above   | 136                          | 10.02                                       | 203                           | 13.70   | 36.70%   |
| - Other   | 813                          | 59.88                                       | 876                           | 59.12   | (1.27%)  |
| 4. <u>Remainder</u>   |                              |   |                               |   |  |
| - Salaries and wages  | 4,078                        | 300.34                                      | 4,811                         | 324.69  | 8.10%  |
| - Fringe benefits related to<br>above   | 466                          | 34.32                                       | 623                           | 42.05   | 22.52%   |
| - Other objects of expenditure  | 3,016                        | 222.13                                      | 3,225                         | 217.65  | (2.06%)  |
| TOTAL (as above)  | 12,063                       | 888.43                                      | 13,683                        | 923.46  | 3.94%  |

## NOTES:

- 1) This, of course, may be greater than the eligible number of basic income units.
- 2) Basis of calculation: weighted enrolment used in official budget of the University.
- 3) To include all academic administrative appointments.
- 4) To include all expenses (except furniture and equipment) included under definitions 18 and 22 (a) of "Instructions, Definitions and Notes Relating to the Completion of the DBS-CAUBO Report on Financial Statistics of Universities and Colleges for 1969".
- 5) By way of supplementary comment, please disclose the University's policies with respect to the use it may make of "reserves" or "appropriations." The effect of such policies and their measurable dollar impact should also be disclosed, in sufficient detail to permit a full understanding of the University's procedures towards arriving at annual operating expenditures.
- 6) The completion of this column is optional.
- 7) That budget which has been adopted by the Board of Governors.





2(b)i

Budget allocations for major salary and non-salary categories for  
the years 1969-70 (actual) 1970-71 (estimated) and 1971-72 (projected)  
- as per Form I

In commenting on Form I we note that some degree of distortion is introduced into the comparative figures because the McMaster Health Sciences Division is included and the B.I.U. divisor does not adjust for the special grant. For this reason, a statement of the Financing Operations, page 2A, has been completed excluding Health Sciences. This is in addition to the regular two pages required for Form I.

Referring to page 2A, the per unit of weighted enrolment for salaries and fringe benefits for all areas for 1969-1970 is \$1,278.91 or 77.59 percent of total operating expenditures. Similarly, all salaries for 1970-71 amount to 79.87 percent of total operating expenditures.

McMaster cannot act unilaterally in the matter of salary and wage increases but must follow the patterns developed by the Universities of Ontario and the comparable communities for the various types of workers. If increases of the magnitude of 8-10 percent per annum must be paid to continuing faculty and staff, this can be sustained only by a combined increase in the amount of the basic income unit and the number of basic income units or, conversely, by a decrease in other items such as library books, furniture and equipment, maintenance, etc.

The largest increase in per weighted unit of enrolment is in the salary area with percentage increases 1970-71 over 1969-70 as follows:

|                              |        |
|------------------------------|--------|
| Academic Salaries            | 7.95%  |
| Library Salaries             | 15.91% |
| Remainder Salaries and Wages | 8.10%  |

In spite of salary and wage increases for plant maintenance workers and increased space responsibilities through the occupation of new buildings, the percentage increase for Plant Maintenance Salaries and Wages was held to 3.08 percent. This was due, in part, to a planned decrease in the level of maintenance cleaning.



Because of the increase in salaries and fringe benefits necessary to move forward with the community, a trade-off has been necessary. This is indicated by the decrease in furniture and equipment of 18.34 percent, library acquisitions 12.50 percent and other items of maintenance 1.27 percent.

We are facing a critical problem in determining an acceptable balance between salaries on one hand and other necessary expenditures on the other hand. This entire matter is under study at the present time and for this reason we have not projected figures for the 1971-72 period.



2(b)ii

University comments on adequacy of patterns indicated in (i)

Our comments on item 2(b)i above and the discussions contained in items 2(a)i, 2(a)ii and 2(a)iii are relevant to the remarks that follow.

Because of the financial constraints that are being imposed as a result of the present state of our economy, we expect to experience critical problems and all possible measures are being taken to meet the developing situation. But the problems are imposing. The University must maintain and improve the quality of the education it offers and improve the environment for teaching and scholarly pursuits. The elements of choice are not as great as one might think.

Adequate administration is essential and if one is to bear the expense of greater participation in decision making and the greater reporting required because of the public need to know more about this large element of public expenditure we will find it difficult to meet the objective of devoting a larger portion of our financial resources to teaching and research.

Similarly, all service elements, including maintenance, cannot be allowed to fall below minimum acceptable levels. Efforts are being made to make more efficient use of the University's space, but this will lead to more intensive use that will undoubtedly cause unit cleaning costs for example to rise. Efforts are being made to reduce the cost of buildings and the trade-offs between building quality and the maintenance costs of this space in use are most difficult to assess.

There is a great need to improve the quality of teaching at the freshman and sophomore levels and this will lead to a reallocation of resources at the expense, we fear, of the senior years. Improved quality at the junior level seems to indicate greater personal attention and this can only mean larger expenditures for salaries. While technology can lead to more effective teaching (we have high hopes for the method being used by our Department of Psychology this year), the use of technology does not appear at this juncture to result in a significant reduction of costs.





Computer assisted instruction is in its infancy and the only significant experiment under way on this continent is Project Plato. The cost of such developments are enormous and the paedagogical skills necessary extremely rare. Improvements in the effectiveness of teaching in some areas are sure to develop but improvements in costs are not nearly so predictable.

This University is encouraged by the establishment of the joint CUA/CPUO study group for Educational Technology.

It will be noted that our efforts to employ resources more efficiently at the senior level continue; however the expectation that savings here will balance the need for increased expenditure at the junior level does not appear to be hopeful.

There are similar problems regarding the reallocation of resources to the adult education program. Extension degree students must be given the same quality of instruction and opportunity as full-time students and this can only mean that strains will be imposed on the regular daytime programs. Some combination of extension and regular classes is now in operation and this will reduce the problem to some extent.

As is mentioned elsewhere new, more relevant programs are being offered but usually new staff is required so that these changes as well aggravate the problem of overall financing.

The necessity of resource reallocation mentioned above, the tenure phenomenon, the increasing seniority of our faculty, matching existing faculty to new programs, the expectation of a deceleration of growth in student numbers and the financial restraints all produce a "Dollar Squeeze" here that is critical.

Private fund raising will help to some extent but with the private sector believing that 100 percent support is coming from the government agencies it is difficult to raise significant amounts. The current re-examination by many corporations of their policies regarding the support of universities and their changing interests in the projects they wish to support do not produce at this time a climate that is favourable.

McMaster will continue its efforts on all fronts, but increase in the level of support from the Government of Ontario is indicated.





# **ANCILLARY OPERATIONS (1)**

Form CUA 70-J

1969-70 Actual

Total for All Ancillary Enterprises

| Residences | Food Service | Bookstore | Printing | Parking | Vending Machines | Rent & Interest |
|------------|--------------|-----------|----------|---------|------------------|-----------------|
|            |              | 7,922     |          | 86,189  |                  |                 |
| 586,070    | 1,057,564    | 1,196,521 | 217,223  |         | 20,581           | 149,667         |
|            |              |           |          |         |                  |                 |
| 586,070    | 1,057,564    | 1,204,443 | 217,223  | 86,189  | 20,581           | 149,667         |
| 540,510    | 1,075,829    | 1,193,531 | 215,744  | 86,189  | 6,666            | 97,667          |
|            |              |           |          |         |                  |                 |
| 540,510    | 1,075,829    | 1,193,531 | 215,744  | 86,189  | 6,666            | 97,667          |
| 45,560     | (18,265)     | 10,912    | 1,479    | 0       | 13,915           | 52,000          |
| 35,144     |              | 52,000    |          |         |                  |                 |
| 10,416     | (18,265)     | (41,088)  | 1,479    | 0       | 13,915           | 52,000          |
| (161,000)  | (40,300)     | (7,000)   | (1,965)  |         |                  |                 |
| (150,584)  | (58,565)     | (48,088)  | (486)    | 0       | 13,915           | 52,000          |

## **NAME OF ANCILLARY ENTERPRISE**

- SOURCES OF DIRECT REVENUE**
1. Fee or membership revenue.
  2. Direct charges for goods or services.
  3. Other.

- TOTAL DIRECT REVENUE**
- DIRECT COSTS**
1. Costs directly attributable to the enterprise.
  2. Costs shared with other ancillary enterprise(s).

## **TOTAL DIRECT COSTS**

## **EXCESS (shortfall) of Direct Revenue over Direct Costs**

**INDIRECT (Overhead or Joint) Costs**

- as ordinarily budgeted but excluding transfers as dealt with below:

## **EXCESS (shortfall)**

**NET EFFECT OF TRANSFERS "(To)" and "From" "Appropriations" and "Reserves".**

**REPORTED OR BUDGETED EXCESS OR (SHORTFALL) ON ANCILLARY ENTERPRISE.**

(1) Those enterprises that are not directly related to the educational functions of the university, but are undertaken or operated to provide services to faculty and students. For purposes of illustration, operations which may be recognized as ancillary enterprises are student residences, student unions, parking facilities, cafeterias, alumni services, dining halls, book stores, university presses, intercollegiate and intramural athletics, health services (except portion provided as part of counselling or advisory services) etc.

Finance Branch  
6/10/70



2(c)i

General conditions in finding qualified faculty members

The Faculty of Humanities has generally been successful in recruiting qualified faculty. Nevertheless, shortages of senior professors do exist in several disciplines. Fine Arts is a case in point as is History where we have had some difficulty in hiring a senior scholar in Canadian Studies. In Romance Languages it has been particularly difficult to appoint scholars of any age or rank in French-Canadian Studies.

There are continuing difficulties in finding qualified Canadians for appointments in the Social Sciences. This is particularly true for the Departments of Religion, Sociology and Political Science.

The Faculty of Business has encountered difficulties in recruiting qualified faculty in the areas of Accounting, and Finance, and Quantitative Methods.

The Faculty of Science has had no problems in recruiting highly qualified faculty in most areas, although Computer Scientists and Applied Statisticians still are in short supply.

In the Faculty of Engineering there is a shortage of highly qualified personnel in certain 'traditional' areas, e.g., soil mechanics and geotechnics. The same is true of certain developing areas such as transportation. In both these categories, strong competition from the private sector, in particular consulting firms, exists. A new area under development is Production Engineering, where not only are the qualified professionals in industry almost entirely immigrants, but where the University must almost wholly depend on recruiting from U.S.A. or abroad if we are to develop a university operation at the forefront of the technology.

The Division of Health Sciences has been faced with a critical shortage of potential faculty members in Epidemiology and Clinical Pharmacology, both of which are growing areas of importance. In addition, there continues to be a dearth of people with both clinical and scientific training who can undertake responsibility for the advanced levels of education and clinical research in Nursing and Medicine.



The recruitment of first-rate faculty in its disciplines requires rigorous and intensive search. Properly qualified Canadians for senior level appointments are particularly difficult to recruit as the demand increases.



FULL-TIME FACULTY APPOINTMENTS DURING PERIOD SEPTEMBER 15th, 1969 TO SEPTEMBER 15th, 1970

This return is requested in order to update the Citizenship Analysis of University Faculty carried out by the C.P.U.O. in early 1970. Please note that discipline areas (and programs included within such areas) remain those of the Dominion Bureau of Statistics.

| TOTAL | DISCIPLINE AREA | CANADA | UNITED STATES | UNITED KINGDOM | OTHER COMMON-WEALTH | FRANCE | OTHER |
|-------|-----------------|--------|---------------|----------------|---------------------|--------|-------|
|-------|-----------------|--------|---------------|----------------|---------------------|--------|-------|

AGGREGATE FIGURES

|  |               |               |   |   |   |   |  |
|--|---------------|---------------|---|---|---|---|--|
| - Country of Residence in Year Previous to Appointment | NOT AVAILABLE |               |   |   |   |   |  |
| - Citizenship Status at date of Appointment            | 23            | 10            | 7 | 4 | 3 | 2 |  |
| - Citizenship Status at birth                          |               | NOT AVAILABLE |   |   |   |   |  |
| - Country of first Degree                              | 22            | 10            | 7 | 4 | 3 | 3 |  |
| - Country of last Degree                               | 13            | 24            | 6 | 1 | 4 | 1 |  |

N.B. No breakdown by Discipline Area available.





2(d)i and 2(d)ii

University comments on policy of maintaining differentiation between operating and capital assistance on both a University and a system wide basis

At the time of writing, the Subcommittee on Capital Financing is developing a "Position Paper on the Concept of Combining the Operating and Capital Grants Formulae". This has yet to be approved by the Subcommittee and the Committee of Presidents of Universities of Ontario. McMaster, in principle, agrees with the draft of the position paper and, hopefully, this will be available to the Committee on University Affairs at an early date.

If C.U.A. wishes to discuss this matter further when they visit McMaster, we will be prepared at that time.



LONG-TERM ENROLMENT DATAForm CUA-70-LTO 1975-76TOTAL UNIVERSITY  
(excluding Education)Instructions:

1. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D.U.A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree Programs only.
2. For the University of Guelph and The University of Waterloo, separate reports are requested representing "Fall Term, on campus", Fall Term "on and off" campus (Waterloo), and Equivalent Full-Time (Adjustment for Co-operative and Trimester Systems) bases for enrolment.
3. For constituent Universities with Federated or Affiliated Institutions, Full-Time Enrolment must take into account net teaching service performed for these Institutions, and will therefore be stated in terms of F.T.E. for teaching services performed (Toronto, Waterloo, Western and Laurentian).
4. Enrolments in university programs in education should be excluded from total University figures provided but should be reported on a separate Form CUA-70-L.

| 1970-71<br>(Est.)  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|--|----------------|----------------|----------------|----------------|----------------|
| (i) Full-Time "Freshman Intake"<br>(i.e. 1st Year Undergraduate Degree)*   |                |                |                |                |                |
| <u>2,420</u>   | <u>2,590</u>   | <u>2,760</u>   | <u>2,910</u>   | <u>3,080</u>   | <u>3,230</u>   |
| (ii) Total Full-Time Undergraduate<br>(including diploma and other non-degree and make-up or qualifying year)*         |                |                |                |                |                |
| <u>6,723</u>   | <u>7,467</u>   | <u>8,173</u>   | <u>8,771</u>   | <u>9,289</u>   | <u>9,826</u>   |
| (iii) Total Graduate<br>(Fall-Term)*   |                |                |                |                |                |
| <u>1,194</u>   | <u>1,349</u>   | <u>1,551</u>   | <u>1,712</u>   | <u>1,839</u>   | <u>1,905</u>   |
| (iv) Total Full-Time Enrolment<br>(ii plus iii)  |                |                |                |                |                |
| <u>7,917</u>   | <u>8,816</u>   | <u>9,724</u>   | <u>10,483</u>  | <u>11,128</u>  | <u>11,731</u>  |
| (v) F.T.E. of Part-Time Enrolment<br>using Formula Conversion<br>Factors (including "Summer School" Graduate Students) |                |                |                |                |                |
| <u>900</u>   | <u>964</u>     | <u>1,024</u>   | <u>1,047</u>   | <u>1,074</u>   | <u>1,112</u>   |
| (vi) F.T.E. Enrolment<br>(iv plus v)   |                |                |                |                |                |
| <u>8,817</u>   | <u>9,780</u>   | <u>10,748</u>  | <u>11,530</u>  | <u>12,202</u>  | <u>12,843</u>  |
| (vii) Total Basic Income Units<br>Under Formula (i.e. Total Weighted Enrolment)  |                |                |                |                |                |
| <u>16,400</u>  | <u>18,924</u>  | <u>21,171</u>  | <u>22,985</u>  | <u>24,366</u>  | <u>25,638</u>  |

Explanatory Comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969 (Please deal with both the quantitative parameters of these variations and the reasons for them):

\*See notes attached



NOTES TO FORM CUA-70-L

- (i) The figures in this line are basically unchanged from previous years except that we have excluded Education and Medical enrolment figures which were included in last year's submission.
- (ii) Education figures have been excluded this year and shown separately. The increase in enrolment projected in this line reflects the increasing enrolment in our established and projected Health Sciences programs, especially in the Residence and Intern programs.
- (iii) Projected enrolment has decreased from last year's submission as a result of a careful reassessment, as explained in the notes accompanying Form CUA-70-D.



LONG-TERM ENROLMENT DATAForm CUA-70-LTO 1975-76EDUCATIONInstructions:

1. Please complete this report in a manner consistent with the enrolment categorization scheme and definitions reflected on the regular D.U.A. Enrolment Reports (Forms UA3). Note particularly, however, the precise requirement under item (i) which is for registration in the 1st University year subsequent to Grade 13 into undergraduate degree Programs only.
2. For the University of Guelph and The University of Waterloo, separate reports are requested representing "Fall Term, on campus", Fall Term "on and off" campus (Waterloo), and Equivalent Full-Time (Adjustment for Co-operative and Trimester Systems) bases for enrolment.
3. For constituent Universities with Federated or Affiliated Institutions, Full-Time Enrolment must take into account net teaching service performed for these Institutions, and will therefore be stated in terms of F.T.E. for teaching services performed (Toronto, Waterloo, Western and Laurentian).
4. Enrolments in university programs in education should be excluded from total University figures provided but should be reported on a separate Form CUA-70-L.

| 1970-71<br>(Est.)  | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> |
|--|----------------|----------------|----------------|----------------|----------------|
| (i) Full-Time "Freshman Intake" (i.e. 1st Year Undergraduate Degree)   | _____          | _____          | _____          | _____          | _____          |
| (ii) Total Full-Time Undergraduate (including diploma and other non-degree and make-up or qualifying year)       | _____          | <u>150</u>     | <u>225</u>     | <u>275</u>     | <u>425</u>     |
| (iii) Total Graduate (Fall-Term)   | _____          | <u>-</u>       | <u>-</u>       | <u>-</u>       | <u>-</u>       |
| (iv) Total Full-Time Enrolment (ii plus iii)   | _____          | <u>150</u>     | <u>225</u>     | <u>275</u>     | <u>425</u>     |
| (v) F.T.E. of Part-Time Enrolment using Formula Conversion Factors (including "Summer School" Graduate Students) | _____          | <u>-</u>       | <u>-</u>       | <u>-</u>       | <u>-</u>       |
| (vi) F.T.E. Enrolment (iv plus v)  | _____          | <u>150</u>     | <u>225</u>     | <u>275</u>     | <u>425</u>     |
| (vii) Total Basic Income Units Under Formula (i.e. Total Weighted Enrolment)                                     | _____          | _____          | _____          | _____          | _____          |

Explanatory Comments outlining variations in above enrolment data as compared with similar forecasts submitted Fall, 1969 (Please deal with both the quantitative parameters of these variations and the reasons for them):





3(a)ii

Outline of changes in proposed developments since previous forecast,  
with documentation as to reasons for such changes, and new developments  
contemplated for 1975-76.

See Notes to Form CUA-70-L Page 74 Item iii.



PROBABLE CUMULATIVE 5 YEAR CASH FLOW FOR FORMULA CAPITAL PROJECTS WITH FINAL APPROVALS

CUA/70/M-1

(SUBSEQUENT TO APRIL 1 - 1969 AND BY MARCH 31 - 1971)

McMaster  
University

| Project No. | Project Name<br><br>FORMULA  | In \$ 000's                |                            | Cash Flow of Financial Assistance in \$ 000's |           |           |           |           |           |  |                         | REMARKS |
|-------------|--|----------------------------|----------------------------|---|-----------|-----------|-----------|-----------|-----------|--|-------------------------|---------|
|             |  | Approved Total Expenditure | Total Financial Assistance | 1969 - 70                                     | 1970 - 71 | 1971 - 72 | 1972 - 73 | 1973 - 74 | 1974 - 75 |  |                         |         |
| Mc35 38B    | Arts III   | 3,988                      | 3,789                      | 1,010   | 1,832     | 947       |           |           |           |  | Partial Approval Only   |         |
| Mc50 39D    | N.W. Extension to Physical Sciences Building                                     | 1,774                      | 1,685                      | 460   | 1,133     | 92        |           |           |           |  |                         |         |
| Mc64 38 BA  | Arts III Extra Allowance   | 101                        | 96                         | 33  | 63        |           |           |           |           |  |                         |         |
| Mc66 39 DA  | Additional Expenses Associated with N.W. Extension to Physical Sciences Building | 27                         | 27                         |   | 27        |           |           |           |           |  |                         |         |
| Mc46 44     | Life Sciences  | 4,790                      | 4,790                      | 202   | 606       | 3,466     | 482       | 34        |           |  |                         |         |
|             | TOTAL  | 10,680                     | 10,387                     | 1,705   | 3,661     | 4,505     | 482       | 34        |           |  | Verbal Approval Secured |         |
|             | RENOVATIONS  |                            |                            |   |           |           |           |           |           |  |                         |         |
| Mc45 39H    | Renovate Physical Sciences Building  | 137                        | 130                        | 115   | 15        |           |           |           |           |  |                         |         |
| Mc69 69     | Remodel University Hall  | 660                        | 660                        |   | 61        | 599       |           |           |           |  |                         |         |
|             | Total Renovations  | 797                        | 790                        | 115   | 76        | 599       |           |           |           |  |                         |         |
|             | GRAND TOTAL M I  | 11,477                     | 11,177                     | 1,820   | 3,737     | 5,104     | 482       | 34        |           |  |                         |         |
|             |  |                            |                            |   |           |           |           |           |           |  |                         |         |
|             |  |                            |                            |   |           |           |           |           |           |  |                         |         |



PROBABLE YEARLY 5 YEAR CASH FLOW FOR "FORMULA" CAPITAL PROJECTS WITH FINAL APPROVALS

CUA/70/M-2

(PRIOR TO MARCH 31 - 1969)

| Project No. | (list only those projects requiring additional funds)<br>Project Name | In \$ 000's                |                            | Balance of Financial Assistance in \$ 000's  |           |           |           |           | REMARKS |
|-------------|---|----------------------------|----------------------------|--|-----------|-----------|-----------|-----------|---------|
|             |   | Approved Total Expenditure | Total Financial Assistance | Probable Financial Assistance to March 31/71 | 1971 - 72 | 1972 - 73 | 1973 - 74 | 1974 - 75 |         |
| Mc42 40A    | Addition Library  | 1,742                      | 1,655                      | 1,605  | 50        |           |           |           |         |
| Mc17 39C    | Psychology Building   | 3,886                      | 3,692                      | 3,692  |           |           |           |           |         |
| Mc32 38A    | Arts II   | 3,786                      | 50                         | 50   |           |           |           |           |         |
| Mc41 63     | Central Boiler Plant Expansion I (51.5%)                              | 1,629                      | 1,548                      | 1,548  |           |           |           |           |         |
| Mc59 42     | Additional Facilities Residences and Commons                          | 1,020                      | 969                        | 969  |           |           |           |           |         |
|             | TOTAL M 2   | 12,063                     | 7,914                      | 7,864  | 50        |           |           |           |         |

Ontario Department of University Affairs - Architectural Services Branch



PROBABLE YEARLY 5 YEAR CASH FLOW FOR "NON-FORMULA" CAPITAL PROJECTS WITH FINAL APPROVALS

CUA/70/M-3

(AS OF MARCH 31 - 1971)

McMaster  
University

| Project No. | (list only those projects requiring additional funds)<br>Project Name                 | In \$ 000's                |                            |  | Balance of Financial Assistance In \$ 000's |           |           |           |            | REMARKS<br>(list formula project which correlates) |
|-------------|---|----------------------------|----------------------------|--|---|-----------|-----------|-----------|------------|--|
|             |   | Approved Total Expenditure | Total Financial Assistance | Probable Financial Assistance to March 31/71 | 1971 - 72                                   | 1972 - 73 | 1973 - 74 | 1974 - 75 | Subsequent |  |
| Mc39 48     | Central Chilling Plant Expansion I  | 1,244                      | 1,181                      | 1,171  | 10  |           |           |           |            |  |
| *Mc51 81    | Two 5000 Ton Chillers (25%)   | 406                        | 386                        | 386  |   |           |           |           |            |  |
| *Mc52 146   | 115 KV Electrical Service (77.4%)   | 1,113                      | 1,057                      | 1,057  |   |           |           |           |            |  |
| Mc54 46B    | Roads & Sites 1969  | 588                        | 558                        | 558  |   |           |           |           |            |  |
| *Mc55 58    | Utilities & Services 1969 (74.9%)   | 2,746                      | 2,609                      | 2,389  | 220   |           |           |           |            |  |
| *Mc40 57    | Utilities & Services 1968 (74.9%)   | 2,267                      | 2,154                      | 2,154  |   |           |           |           |            |  |
| Mc63 46D    | Utilities & Services 1970   | 192                        | 183                        | 183  |   |           |           |           |            |  |
| 75          | Utilities & Services 1971   | 1,450                      | 1,450                      | 698  | 752   |           |           |           |            |  |
| 75R         | Utilities & Services 1971   | 470                        | 470                        | 190  | 280   |           |           |           |            |  |
| 77          | Roads & Sites 1971  | 95                         | 95                         | 28   | 67  |           |           |           |            |  |
| 145A        | Land Acquisitions 1970  | 756                        | 756                        | 302  | 400   | 54        |           |           |            |  |
| 136         | New Boiler  | 1,400                      | 1,400                      | 78   | 762   | 560       |           |           |            |  |
|             | TOTAL M 3   | 12,727                     | 12,299                     | 9,194  | 2,491                                       | 614       |           |           |            |  |
|             | * Regular University Capital Share Only<br>balance of project is Health Science share |                            |                            |  |   |           |           |           |            |  |

Ontario Department of University Affairs - Architectural Services Branch





**PROPOSED CUMULATIVE 5 YEAR CASH FLOW FOR ADDITIONAL PROJECTS**

CUA/70/M-4  
Page 1 of 2  
McMASTER

**FOR INTERIM CAPITAL FORMULA ENTITLEMENT**

(All Amounts In \$ 000's)

| (All Amounts In \$ 000's)  |                                  |                 |                         |                             |                            |           |           |           |           |            |             | University |
|--|----------------------------------|-----------------|-------------------------|-----------------------------|----------------------------|-----------|-----------|-----------|-----------|------------|-------------|------------|
| REMARKS  |                                  |                 |                         |                             |                            |           |           |           |           |            |             |            |
| Interim Formula Cumulative Cash Flow Entitlement As Per May 1st, 1970  |                                  |                 |                         |                             |                            |           |           |           |           |            |             |            |
| Total of Probable Cumulative Cash Flow For Formula Projects With Approvals As Of March 31 - 1971 (Table M-1) |                                  |                 |                         |                             |                            |           |           |           |           |            |             |            |
| Project No.  | Project Name                     | Approval Status | Date of Last Approval   | Estimated Total Expenditure | Total Financial Assistance | 1971 - 72 | 1972 - 73 | 1973 - 74 | 1974 - 75 | 1975 - 76* | * Estimated |            |
| 41C  | Residence                        |                 |                         | 1,292                       | 16                         | 9         | 16        | 16        | 16        | 16         | Balance     |            |
|  |                                  |                 |                         | 1,292                       | 16                         | 905       | 6,222     | 11,807    | 18,915    | 24,807     | Balance     |            |
| 74   | Physical Education Academic Wing | UACP 1          | Submitted Nov. 3, 1969  | 2,756                       | 2,475                      | 111       | 1,797     | 2,431     | 2,475     | 2,475      | Balance     |            |
|  |                                  |                 |                         | 4,048                       | 2,491                      | 794       | 4,425     | 9,376     | 16,440    | 22,332     | Balance     |            |
| Mc61   | Engineering Building Ext. 1      | UACP 1          | Submitted Oct. 22, 1968 | 4,627                       | 3,476                      | 351       | 2,243     | 3,441     | 3,476     | 3,476      | Balance     |            |
|  |                                  |                 |                         | 8,675                       | 5,967                      | 443       | 2,182     | 5,935     | 12,964    | 18,856     | Balance     |            |
| 137  | Central Utilities Expansion IV   |                 |                         | 1,362                       | 1,067                      | 60        | 877       | 1,067     | 1,067     | 1,067      | Balance     |            |
|  |                                  |                 |                         | 10,037                      | 7,034                      | 383       | 1,305     | 4,868     | 11,897    | 17,789     | Balance     |            |
| 39E  | Remodel Hamilton Hall            |                 |                         | 880                         | 495                        | 11        | 495       | 495       | 495       | 495        | Balance     |            |
|  |                                  |                 |                         | 10,917                      | 7,529                      | 372       | 810       | 4,373     | 11,402    | 17,294     | Balance     |            |
| 43   | University Centre                |                 |                         | 2,106                       | 1,650                      | 24        | 73        | 956       | 1,605     | 1,650      | Balance     |            |
|  |                                  |                 |                         | 13,023                      | 9,179                      | 348       | 737       | 3,417     | 9,797     | 15,644     | Balance     |            |
| 39B  | Science & Engineering Library    |                 |                         | 3,457                       | 2,580                      | -         | 37        | 1,077     | 2,491     | 2,580      | Balance     |            |
|  |                                  |                 |                         | 16,480                      | 11,759                     | 348       | 700       | 2,340     | 7,306     | 13,064     | Balance     |            |
| 73   | Arts IV                          |                 |                         | 6,240                       | 5,115                      | 76        | 227       | 2,207     | 4,891     | 5,068      | Balance     |            |
|  |                                  |                 |                         | 22,720                      | 16,874                     | 272       | 473       | 133       | 2,415     | 7,996      | Balance     |            |
| Ontario Department of University Affairs - Architectural Services Branch                                     |                                  |                 |                         |                             |                            |           |           |           |           |            |             |            |
| 8  |                                  |                 |                         |                             |                            |           |           |           |           |            |             |            |

Ontario Department of University Affairs - Architectural Services Branch







PROBABLE YEARLY 5 YEAR CASH FLOW FOR ADDITIONAL "NON-FORMULA" CAPITAL PROJECTS

CUA/70/M-5

McMASTER  
University

| Project No. | Project Name              | Approval Status | In \$ 000's                |                            |  | Balance of Financial Assistance In \$ 000's |         |         |         |            | REMARKS<br>(list formula project which correlates) |
|-------------|---------------------------|-----------------|----------------------------|----------------------------|--|---|---------|---------|---------|------------|--|
|             |                           |                 | Approved Total Expenditure | Total Financial Assistance | Probable Financial Assistance to March 31/71 | 1971-72                                     | 1972-73 | 1973-74 | 1974-75 | Subsequent |  |
| 80          | Utilities & Services 1972 |                 | 1,620                      | 1,620                      | 120  | 750   | 750     |         |         |            | 39D, 74, 41C, 44A                                  |
| 115         | Roads & Sites 1972        |                 | 480                        | 480                        |  | 27  | 371     | 82      |         |            | 39B, 74, 124                                       |
| 82          | Roads & Sites 1973        |                 | 161                        | 161                        |  |   | 9       | 152     |         |            | 43, 65, 41C  |
| 87          | Utilities & Services 1973 |                 | 1,035                      | 1,035                      |  | 58  | 782     | 195     |         |            | 65, 137, 124A, 73                                  |
| 135         | New Chiller               |                 | 1,421                      | 1,421                      |  |   | 79      | 1,087   | 255     |            | H. S. C.   |
| 88          | Roads & Sites 1974        |                 | 389                        | 389                        |  |   |         | 21      | 368     |            | 40B, 47, 50, 118                                   |
| 95          | Utilities & Services 1974 |                 | 592                        | 592                        |  |   | 33      | 447     | 112     |            | 65B, 91, 116, 118, 40B, 47                         |
| 96          | Roads & Sites 1975        |                 | 1,208                      | 1,208                      |  |   |         |         | 67      | 1,141      | 89, 90   |
| 100         | Utilities & Services 1975 |                 | 439                        | 439                        |  |   |         | 25      | 331     | 83         | 68, 89, 90, 93, 123                                |
|             | TOTAL                     |                 | 7,345                      | 7,345                      | 120  | 835   | 2,024   | 2,009   | 1,133   | 1,224      |  |
|             |                           |                 |                            |                            |  |   |         |         |         |            |  |





INSTITUTION: McMASTER UNIVERSITYFORM CUA-70-NWEIGHTED ENROLMENT FOR PURPOSES OF THEINTERIM CAPITAL FORMULAS U M M A R Y

|         | Weighting Categories: Capital Weighting Scheme |          |          |          |          | TOTAL<br>WEIGHTED<br>ENROLMENT |
|---------|--|----------|----------|----------|----------|--------------------------------|
|         | A<br>1.0                                       | B<br>1.5 | C<br>2.0 | D<br>3.0 | E<br>4.0 |                                |
| 1970-71 | 4,082  | 3,956    | 444      | 705      | 1,064    | 10,251                         |
| 1971-72 | 4,428  | 4,369    | 582      | 705      | 1,204    | 11,288                         |
| 1972-73 | 4,882  | 4,891    | 674      | 852      | 1,304    | 12,603                         |
| 1973-74 | 5,248  | 5,287    | 776      | 924      | 1,404    | 13,639                         |
| 1974-75 | 5,635  | 5,529    | 838      | 969      | 1,524    | 14,495                         |
| 1975-76 | 6,006  | 5,892    | 900      | 984      | 1,620    | 15,402                         |

N.B. Following the instructions for this form full-time equivalent for part-time students is not included in our tabulations.





## FUTURE PLANNING

3(b)

### Capital Requirements - as per Interim Capital Reports Schedules (Forms M-1 to M-5)

These forms have been completed as requested and represent the University's needs and priorities at this time. Changes can be expected as our plans unfold.

Every effort is being made at this time to create only the space necessary at a cost level as low as practical. While we have only indicated support from D.U.A. according to the Interim Capital Formula it will be noted that our estimates exceed the formula allowance for particular structures in many cases. It would appear that instead of private funds being used for the improvement of quality they will be used to meet essential needs. Our comments on the adequacy of the Interim Capital Formula follow in item 3(e).

It should be noted that according to instructions received the summary form CUA-70-N does not include an input to acknowledge the full-time equivalent of part-time involvement.

We have not included details concerning specific projects as this is supplied on a yearly basis to the Department of University Affairs. We will be prepared to comment, however, should there be specific questions.



3(c)i

Descriptive outline of proposed new programs 1971-72

The proposed Ph.D. program in Philosophy to be offered jointly by the University of Guelph and McMaster University has been submitted for appraisal. (UA4 Form attached)

It is now intended to extend work in Computer Science to the graduate level and an M.Sc. program for work in this field was submitted for appraisal. (UA4 Form, 1968)

A new Ph.D. program in Statistics under the joint auspices of the Departments of Mathematics and Applied Mathematics is being submitted for appraisal for introduction in 1971-72. (UA4 Form attached)

The newly instituted program in Engineering/Management conducted jointly by the Faculty of Engineering and the Faculty of Business will register its first students in 1970-71 at the Year II level.

M.Sc.(Medical Sciences) in Design, Measurement, and Evaluation. (UA4 Form attached)

It is also probable that we may offer for appraisal a program for the M.Sc. and Ph.D. in Neurosciences to begin in 1971-72. However the development of the proposal is not yet at a stage which would make it possible to prepare a UA4 form; one will be submitted later. Instead of establishing a Department of Physiology in the Faculty of Medicine, the University has established a Department of Neuroscience and has appointed an eminent scientist as its chairman; this new strength together with the distinguished work here in physiological psychology makes the establishment of a specific degree program in Neuroscience a natural development for this campus.



# NEW PROGRAM INFORMATION

(SEPARATE FORMS - UA4 PAGES 4 AND 5 - MUST BE SUBMITTED FOR EACH NEW PROGRAM)

UNIVERSITY McMASTER AND GUELPH

TITLE OF PROGRAM Ph.D. in Philosophy

INDICATE NUMBER OF YEARS DURING WHICH EXTRAORDINARY FINANCIAL ASSISTANCE IS EXPECTED None

(USE CURRENT DOLLARS AND CURRENT BASIC INCOME UNIT VALUE IN ESTIMATING INCOME AND EXPENSE)

|   | INITIAL<br>EXPENSES | FIRST<br>YEAR | SECOND<br>YEAR | THIRD<br>YEAR | FOURTH<br>YEAR | FIFTH<br>YEAR |
|---|---------------------|---------------|----------------|---------------|----------------|---------------|
| ESTIMATED ENROLMENT AND STAFF                     |                     |               |                |               |                |               |
| GRADUATE ENROLMENT (Joint Program)                |                     | 4             | 8              | 14            | 18             | 20            |
| UNDERGRADUATE ENROLMENT                           |                     | -             | -              | -             | -              | -             |
| WEIGHTED ENROLMENT                                |                     | 24            | 48             | 84            | 108            | 120           |
| STAFF FOR NEW PROGRAM <u>McMaster</u><br>(F.T.E.) |                     | 1/2           | 1              | 1 1/2         | 2              | 2             |

## ESTIMATED OPERATING EXPENSE McMaster

|   | \$    | \$     | \$     | \$     | \$     |
|---|-------|--------|--------|--------|--------|
| ACADEMIC SALARIES                                       |       | 10,000 | 20,000 | 30,000 | 40,000 |
| ACADEMIC OTHER EXPENSES<br>(INCLUDING FRINGE BENEFITS)  | 4,000 | 25,000 | 23,000 | 21,000 | 25,000 |
| OTHER OPERATING EXPENSES<br>(INCLUDING FRINGE BENEFITS) |       | 6,500  | 12,100 | 20,400 | 26,000 |
| TOTAL ESTIMATED EXPENSE                                 | 4,000 | 41,500 | 55,100 | 71,400 | 91,000 |

## ESTIMATED OPERATING INCOME McMaster

The universities have agreed to an equal division of income.

|                               | \$ | \$     | \$     | \$     | \$     |
|-------------------------------|----|--------|--------|--------|--------|
| ACADEMIC FEES                 |    | 800    | 1,600  | 2,800  | 3,600  |
| GRANT GENERATED BY<br>FORMULA |    | 19,000 | 38,000 | 66,500 | 85,500 |
| OTHER OPERATING INCOME        |    |        |        |        |        |
| TOTAL ESTIMATED INCOME        |    | 19,800 | 39,600 | 69,300 | 89,100 |

|                               | \$    | \$     | \$     | \$    | \$    |
|-------------------------------|-------|--------|--------|-------|-------|
| EXCESS OF EXPENSE OVER INCOME | 4,000 | 21,700 | 15,500 | 2,100 | 1,900 |

## ESTIMATED CAPITAL COST INVOLVED Cost of 5 or 6 offices and a seminar room.

|                                 | \$ | \$ | \$ | \$ | \$ |
|---------------------------------|----|----|----|----|----|
| LAND AND BUILDING               |    |    |    |    |    |
| FURNISHINGS AND FIXTURES        |    |    |    |    |    |
| EQUIPMENT                       |    |    |    |    |    |
| OTHER                           |    |    |    |    |    |
| TOTAL ESTIMATED<br>CAPITAL COST |    |    |    |    |    |

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### NEW PROGRAM INFORMATION

(TO ACCOMPANY UA4 - PAGE 4 FOR EACH NEW PROGRAM)

UNIVERSITY MCMMASTER AND GUELPH

TITLE OF NEW PROGRAM Ph.D. in Philosophy

#### OUTLINE OF NEW PROGRAM

The program will allow thesis work in:

- 1) British empiricism
- 2) Philosophy of language
- 3) Value theory
- 4) Philosophy of Science
- 5) Metaphysics and philosophy of mind.

A future area of specialization will be ancient philosophy.

#### DISTINCTIVE FEATURES OF NEW PROGRAM

The most novel feature of this undertaking is that the two universities are combining their philosophy departments into a single department for Ph.D. work. In this way there is a strong staff in each of the areas of specialization. Also the libraries will coordinate their purchases in philosophy research material. There are unique library holdings already (Russell Archive, Wittgenstein collection) and a freshness of approach to the academic requirements may make this program attractive to potential students.

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## NEW PROGRAM INFORMATION

(SEPARATE FORMS - UA4 PAGES 4 AND 5 - MUST BE SUBMITTED FOR EACH NEW PROGRAM)

UNIVERSITY McMASTER

TITLE OF PROGRAM Ph.D. in Statistics

INDICATE NUMBER OF YEARS DURING WHICH EXTRAORDINARY FINANCIAL ASSISTANCE IS EXPECTED \_\_\_\_\_

(USE CURRENT DOLLARS AND CURRENT BASIC INCOME UNIT VALUE IN ESTIMATING INCOME AND EXPENSE)

|  | INITIAL<br>EXPENSES | FIRST<br>YEAR | SECOND<br>YEAR | THIRD<br>YEAR | FOURTH<br>YEAR | FIFTH<br>YEAR |
|--|---------------------|---------------|----------------|---------------|----------------|---------------|
| ESTIMATED ENROLMENT AND STAFF                |                     |               |                |               |                |               |
| GRADUATE ENROLMENT                           |                     | 3             | 7              | 11            | 12             | 12            |
| UNDERGRADUATE ENROLMENT                      |                     | -             | -              | -             | -              | -             |
| WEIGHTED ENROLMENT                           |                     | 18            | 42             | 66            | 72             | 72            |
| STAFF FOR NEW PROGRAM<br>(Additional F.T.E.) |                     | 1             | 2              | 2             | 3              | 3             |

### ESTIMATED OPERATING EXPENSE

|   | \$        | \$        | \$        | \$        | \$         | \$         |
|---|-----------|-----------|-----------|-----------|------------|------------|
| ACADEMIC SALARIES                                       | 20,000    | 22,000    | 38,000    | 40,000    | 55,000     | 58,000     |
| ACADEMIC OTHER EXPENSES<br>(INCLUDING FRINGE BENEFITS)  | 5,000     | 10,000    | 12,000    | 26,000    | 30,000     | 32,000     |
| OTHER OPERATING EXPENSES<br>(INCLUDING FRINGE BENEFITS) | 1,000     | 8,500     | 19,400    | 30,500    | 33,300     | 33,300     |
| TOTAL ESTIMATED EXPENSE                                 | \$ 26,000 | \$ 40,500 | \$ 69,400 | \$ 96,500 | \$ 118,300 | \$ 121,300 |

### ESTIMATED OPERATING INCOME

|                               | \$ | \$        | \$        | \$         | \$         | \$         |
|-------------------------------|----|-----------|-----------|------------|------------|------------|
| ACADEMIC FEES                 |    | 1,200     | 2,800     | 4,400      | 4,800      | 4,800      |
| GRANT GENERATED BY<br>FORMULA |    | 28,500    | 66,500    | 104,500    | 114,000    | 114,000    |
| OTHER OPERATING INCOME        |    |           |           |            |            |            |
| TOTAL ESTIMATED INCOME        | \$ | \$ 29,700 | \$ 69,300 | \$ 108,900 | \$ 118,800 | \$ 118,800 |

|                               | \$     | \$     | \$  | \$       | \$    | \$    |
|-------------------------------|--------|--------|-----|----------|-------|-------|
| EXCESS OF EXPENSE OVER INCOME | 26,000 | 10,800 | 100 | - 12,400 | - 500 | 2,500 |

### ESTIMATED CAPITAL COST INVOLVED The incremental cost of seven or eight offices.

|                                 | \$ | \$ | \$ | \$ | \$ | \$ |
|---------------------------------|----|----|----|----|----|----|
| LAND AND BUILDING               |    |    |    |    |    |    |
| FURNISHINGS AND FIXTURES        |    |    |    |    |    |    |
| EQUIPMENT                       |    |    |    |    |    |    |
| OTHER                           |    |    |    |    |    |    |
| TOTAL ESTIMATED<br>CAPITAL COST | \$ | \$ | \$ | \$ | \$ | \$ |

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### NEW PROGRAM INFORMATION

(TO ACCOMPANY UA4 - PAGE 4 FOR EACH NEW PROGRAM)

UNIVERSITY Mc MASTER

TITLE OF NEW PROGRAM Ph.D. in Statistics

#### OUTLINE OF NEW PROGRAM

McMaster now offers the M.Sc. in Statistics. It is intended to begin to offer the Ph.D., probably in September 1971. The additional resources required are minimal.

#### DISTINCTIVE FEATURES OF NEW PROGRAM

This program is intended to bring together in one undertaking mathematical statisticians in the Department of Mathematics, and applied statisticians in the Department of Applied Mathematics, with considerable interaction with the group in the Department of Epidemiology & Biostatistics in the Faculty of Medicine and also with emphasis on social science applications. It is thought that a particularly valuable doctoral training should result when students are in a single unit which contains statisticians with a broad spectrum of interests ranging from basic mathematical theory through to currently important applications.

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## NEW PROGRAM INFORMATION

(SEPARATE FORMS — UA4 PAGES 4 AND 5 — MUST BE SUBMITTED FOR EACH NEW PROGRAM)

UNIVERSITY McMASTER

M.Sc. (Medical Sciences) in Design,  
TITLE OF PROGRAM Measurement and Evaluation.

INDICATE NUMBER OF YEARS DURING WHICH EXTRAORDINARY FINANCIAL ASSISTANCE IS EXPECTED None

(USE CURRENT DOLLARS AND CURRENT BASIC INCOME UNIT VALUE IN ESTIMATING INCOME AND EXPENSE)

|                                   | INITIAL<br>EXPENSES | FIRST<br>YEAR | SECOND<br>YEAR | THIRD<br>YEAR | FOURTH<br>YEAR | FIFTH<br>YEAR |
|-----------------------------------|---------------------|---------------|----------------|---------------|----------------|---------------|
| ESTIMATED ENROLMENT AND STAFF     |                     |               |                |               |                |               |
| GRADUATE ENROLMENT                |                     | 4             | 7              | 10            | 14             | 16            |
| UNDERGRADUATE ENROLMENT           |                     | -             | -              | -             | -              | -             |
| WEIGHTED ENROLMENT                |                     | 16            | 28             | 40            | 56             | 64            |
| STAFF FOR NEW PROGRAM<br>(F.T.E.) |                     | 2             | 2 1/2          | 3             | 3 1/2          | 3 1/2         |

### ESTIMATED OPERATING EXPENSE

|   |    |        |        |         |         |         |
|---|----|--------|--------|---------|---------|---------|
|   | \$ | \$     | \$     | \$      | \$      | \$      |
| ACADEMIC SALARIES                                       |    | 45,000 | 55,000 | 70,000  | 80,000  | 85,000  |
| ACADEMIC OTHER EXPENSES<br>(INCLUDING FRINGE BENEFITS)  |    | 15,000 | 22,000 | 26,000  | 28,000  | 30,000  |
| OTHER OPERATING EXPENSES<br>(INCLUDING FRINGE BENEFITS) |    | 7,300  | 13,000 | 18,500  | 26,000  | 30,000  |
| TOTAL ESTIMATED EXPENSE                                 | \$ | \$     | \$     | \$      | \$      | \$      |
|   |    | 67,300 | 90,000 | 114,500 | 134,000 | 145,000 |

### ESTIMATED OPERATING INCOME

|                               |    |        |        |        |        |         |
|-------------------------------|----|--------|--------|--------|--------|---------|
|                               | \$ | \$     | \$     | \$     | \$     | \$      |
| ACADEMIC FEES                 |    | 1,600  | 2,800  | 4,000  | 5,600  | 6,400   |
| GRANT GENERATED BY<br>FORMULA |    | 24,500 | 43,400 | 62,000 | 86,800 | 99,200  |
| OTHER OPERATING INCOME        |    |        |        |        |        |         |
| TOTAL ESTIMATED INCOME        | \$ | \$     | \$     | \$     | \$     | \$      |
|                               |    | 26,100 | 46,200 | 66,000 | 92,400 | 105,600 |

|                               |    |        |        |        |        |        |
|-------------------------------|----|--------|--------|--------|--------|--------|
|                               | \$ | \$     | \$     | \$     | \$     | \$     |
| EXCESS OF EXPENSE OVER INCOME |    | 41,200 | 43,800 | 48,500 | 41,600 | 39,400 |

### ESTIMATED CAPITAL COST INVOLVED Included in Health Sciences Building Program

|                                 |    |    |    |    |    |
|---------------------------------|----|----|----|----|----|
|                                 | \$ | \$ | \$ | \$ | \$ |
| LAND AND BUILDING               |    |    |    |    |    |
| FURNISHINGS AND FIXTURES        |    |    |    |    |    |
| EQUIPMENT                       |    |    |    |    |    |
| OTHER                           |    |    |    |    |    |
| TOTAL ESTIMATED<br>CAPITAL COST | \$ | \$ | \$ | \$ | \$ |

DATE \_\_\_\_\_

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## NEW PROGRAM INFORMATION

(TO ACCOMPANY UA4 - PAGE 4 FOR EACH NEW PROGRAM)

UNIVERSITY McMASTER

TITLE OF NEW PROGRAM M.Sc. (Medical Sciences) in Design, Measurement and Evaluation

### OUTLINE OF NEW PROGRAM

The addition of this new subject area within the Graduate Program is now deemed appropriate in terms of the presence at McMaster of a critical mass of methodologists in design, measurement and evaluation, particularly as this group has begun to work with other individuals and units throughout the University in problems related to both basic research in the biomedical field and in health-care research and program evaluation. As will be indicated below, both provincial and federal agencies have indicated the need for additional personnel competent in design, measurement and evaluation, and this new subject area would train two broad categories of individuals in these areas (clinical epidemiologists and health-care research workers).

### DISTINCTIVE FEATURES OF NEW PROGRAM

The development of this new subject area is the culmination of a series of discussions and collaborative investigations between methodologists (located primarily in the Department of Clinical Epidemiology and Biostatistics of the Faculty of Medicine) and both biomedical and health-care research workers located elsewhere in the University. This expansion of the Graduate Program is viewed as a logical extension of the pre-existing common seminar program, the extensive interdepartmental and interfaculty collaboration and consultation, and the informal course work and training program in design, measurement and evaluation which have already been utilized by postgraduate trainees and members of the Faculty of Medicine.

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3(c)ii

Descriptive outline of proposed new programs 1972-73

The University is engaged in active planning in connection with the possible introduction in 1972-73 of the following programs:

1. Master's work in Health Service Administration, a joint undertaking of the Faculties of Business and of Medicine.
2. Graduate work in Social Policy centred in the School of Social Work (already approved in principle by CUA).
3. Two possible new areas in the M.Sc. and Ph.D. in Medical Sciences, viz. Cell Biology and Immunology. Both of these areas are suggested by existing research strengths in the Faculty of Medicine and in the Department of Biology.

It should be noted that while the above programs represent possible lines of development in the medium-term, decisions on all new programs beyond those detailed for 1971-72 will be critically influenced by recommendations that will emanate from the Senate Committee on Academic Policy.

We draw attention again to our interest expressed in our 1969 presentation, to begin work in the early 1970's in both Education and Law.



3(d)

Programs and/or courses to be dropped or reorganized in 1971-72 or 1972-73

The Faculty of Humanities is concerned about double honours courses where enrolment has evidenced a significant decline over several years. Combined courses in French and Fine Arts, Fine Arts and German, Fine Arts and Religion, were dropped recently because of small enrolment. Program alterations and developments are forecast in Classical Civilization, Italian, Russian, and Music in the near future.

In the Faculty of Social Sciences, the reorganization of courses or programs has been, and remains, closely related to that of excessive numbers in lower year courses.

There is no intention of enlarging or expanding the number of fields in Science. No programs have been terminated in the last few years.

Business proposes to change from a three-year to a four-year major program.

The newly established School of Adult Education (replacing the former Degree Studies in Extension and Continuing Education programs) has been charged with the proper maintenance and improvement of its class offerings. To ensure proper and adequate offerings in the School so as to permit students to satisfy their degree requirements in a reasonable length of time, departments have been asked to assume a greater responsibility for the staffing of Adult Education and, where necessary, the University will institute new posts for full-time members of faculty or part-time appointments requiring special commitments to adult teaching. The programs in the School of Adult Education will undergo close scrutiny during 1970-71 and significant changes and reorganization are expected.



3(e)i

University views on effects on future planning of  
Capital Formula standards as now applied

It is now some eighteen months since the Interim Capital Formula has come into effect and, while this is by far too short a period to assess it, there is no doubt that:

- 1) It has provided an objective device for defining the need. This has no doubt been of great assistance to CUA and DUA in dealing with the Treasury Board.
- 2) It has provided an objective device for the distribution of available funds among the universities.
- 3) It is of a form which is capable of adjustment or modification in the light of feedback as evidenced by the revisions introduced in the current year.
- 4) The introduction of the interim formula gave to the universities for the first time a guide which they could use for physical planning for five years into the future, with at least some indication of what could be expected by way of government support.

Although the interim formula is proving to be a useful instrument, it is hoped that a permanent formula will soon be developed based upon careful studies of the functional needs of our universities. It seems likely that the interim formula will be needed for at least one more year and it is with this in mind as well as the development of a new formula that the following points are put forward:

Space Standards

It is our opinion that the space allowed for a "weight 1" student (96 net assignable square feet) could well be too low. This is particularly true in this urban age when we are all being crowded at home, in the city, and during our daytime activities. The allowance is probably low by at least 8 percent.





### Cost Unit

The policy of establishing the cost unit at \$50 per net assignable square foot (reserving \$5 per N.A.S.F. for equipment and furniture) is one that represented a reasonable challenge in 1968. It is our understanding that this was approximately 90 percent of the average cost of facilities of all types constructed over a six-year period. Thus the main problem is the one of mix represented by ongoing construction. If a large proportion of heavily serviced laboratory buildings is required and if relatively small additions to existing buildings are required, the problem of meeting such a challenge will be great. McMaster faces this problem currently.

The policy of holding the cost unit to the 1968 dollar level is in our opinion a challenge that seems impossible to achieve - we feel this policy lacks credibility. Some authorities claim costs have escalated by at least 1 percent a month since April 1, 1968. If the average cost was based on \$50 per N.A.S.F. as of July 1, 1968, then by June 30, 1970, one can reasonably expect at least 24 percent escalation. The Southam Index has increased at an average annual rate of 7 1/2 percent over the last five years and 13 1/2 percent during the past year. On this basis one could expect escalation at approximately 21 percent over a two-year period. The Ontario Construction Index increase of 19 percent from January 1968 to May 1970 is further evidence. Thus by June 30, 1970, the universities were being asked to construct facilities not only at a reduction of 10 percent from actual experience but at a reduction of as much as 29 percent considering escalation. Even if these figures are overstated slightly, the goal seems unrealistic at this point. If it lacks credibility now, what will the situation be at June 30, 1971?

The amount of \$5 per N.A.S.F. for furniture and equipment - or 10 percent of project costs - seems reasonable for non-science facilities, but again it is not even close to the 20 percent of construction costs allowed for science buildings in the past, both in this jurisdiction and others. There is no mix of university construction that will result in a satisfactory average in this case. To say a greater amount should come from the value of a basic income unit for operations does not provide a feasible solution in view of the modest rate of increase being allowed.

This University is attempting to economize in design, to economize in construction and to use space more efficiently. At the same time, we are seeking aid from the private sector but even superior performance on all counts will not be enough to close the gap





between capital formula income and project costs. The result will surely be a physical plant that is inadequate for the educational experience that is required.

### Weighting

The Interim Formula requires the identification of the program in which students are enrolled (Arts, Science, Pass, Honours, etc.) and the level to which they have progressed (first year, second year and beyond, Master's, etc.) in order to assign weights. Since programs with the same title differ significantly from one university to another, this raises concerns over the equity of the weighting for particular universities. The University of Toronto, for example, made a study of the space generated by the formula for its faculties and compared the resulting distribution with what was actually assigned. The study concluded that the weights of the Interim Formula were inadequate to meet the situation then existing at Toronto. A number of universities feel that the weighting for science students is too low relative to that for students in other faculties. User requirement studies could be of use in establishing more appropriate weights but it may be that a formula based on different input data would produce a more equitable method. If, for example, student courses or subject students differentiated by subject (Biology, Classics, History, Physics, etc.) and by level were used as input data, the degree program in which a student is enrolled would become irrelevant. It may well be that, say, second year Physics courses are much more comparable from one university to another than, say, General Arts degree programs. The choice of input data is most important in any consideration of a permanent formula and further study seems indicated. A space-by-function type of formula needs to be examined carefully as one possible solution.

### Non-Formula Aspects

McMaster has reason to be well satisfied with the support it has received for land and for the construction of utilities and services that have been required in connection with the buildings it has created for its academic programs, and urges the continuance of this realistic appreciation of the problem.



### General

There are general matters under consideration at the present time by the CUA and the CPUO that will lead, we hope, to a more equitable formula for the Universities of Ontario.

### Recommendation

We recommend immediate consideration of the eroding effect of construction escalation. Real relief from this constraint is critical to the future health of the Universities.



3(e)ii

Changing secondary school patterns; do attitudes differ among  
Faculties of the University on this matter?

The reduction of the Grade XIII load from nine credits to seven was the first move in a chain of events leading towards earlier specialization of students, forcing many of them to choose their area of prospective University work by the end of Grade XII. Greater flexibility and more diversified curricula in the secondary schools have tended to produce students with widely divergent preparation, competence, and backgrounds. Their experience with mathematics, physics, chemistry, and often with languages other than English, varies considerably. The Science Faculty has found it necessary to supply supplementary instruction for those students who have failed to work on particular topics in the diversified curricula and approaches in high school. The ancient and foreign languages departments have originated or revived classes at the beginner's level. The Faculty of Social Sciences and the Faculty of Business which offer a higher proportion of subjects not directly grounded to the Grade XIII level have been less affected. Increase in enrolment in the Social Sciences until 1970-71 has been much faster than in the Humanities and the Natural Sciences. This development may be attributed to changing patterns in the attitudes of young people rather than to changing secondary school patterns, but there is undoubtedly a relationship between the two.

In the Faculty of Social Sciences, interest in the extending role of new Social Sciences subjects such as Sociology and Economics in the high school curriculum is coupled with legitimate concern as to whether an adequate supply of well qualified secondary school teachers will be available to teach these subjects. It is clearly not valid to assume that teachers who are qualified in the subjects traditionally offered in high school, such as History and Geography, will be similarly qualified in Sociology, Psychology, and Economics.

All Faculties have been concerned about the unusually large classes of recent years, particularly in Year I. Greater emphasis on individual study and a wider variety of options available to secondary school students is likely to cause



them to become ever more dissatisfied with abnormally large classes and their inevitable impersonal relationship with the Faculty. The trend, already apparent, towards offering more Year I classes with smaller enrolment, and towards a wider variety of class offerings, is likely to receive further impetus as a result of the changes in the secondary schools. All Faculties are responding to the need of Year I students to receive more individual attention than heretofore.

On the whole, the absence of externally marked examinations has resulted in a wide variation and some inflation of secondary school grades. Schools vary markedly in the accuracy and reliability of their final grades. Recourse has been made to standardized aptitude tests and achievement tests, but these have not produced a sufficient correlation with university performance that they can be used with confidence. Apart from students enrolled in Year I Humanities, the failure rate has not been greatly affected.

Special classes, new resource material, remedial sessions, increased numbers of tutorials, more sections, etc., have been and will be necessary. Each Faculty is trying to respond to the absence of consistent standards throughout the Province in the preparation of students for university admission. Every aspect of supplementary instruction inevitably makes additional demands on resources of manpower and money.





3(e)iii

Enrolment intakes from other than secondary schools

Enrolment intakes from other than secondary schools can be divided as follows:

1. Special students (mature students)
2. Students transferring from Colleges of Applied Arts and Technology.

For several years this University has admitted on a probationary basis selected applicants who are twenty-three years of age or over in the year of application and who have taken an Aptitude Test. The numbers of students entering under this type of admission have steadily increased over the past few years. It should be noted that most of these students have been admitted to Degree Studies in Extension. The numbers in this age group able to come to the University on a full-time basis are relatively small, and have not varied to any great extent over the past two years. In 1968, eighty-four of these students registered in regular session and in 1969, eighty-three were registered. None of these students is admitted to Engineering and very few to Natural Sciences.

Students transferring from Colleges of Applied Arts and Technology have been limited in number. In 1968, ten such students registered and in 1969, there were eleven. It is anticipated that this year there will be a larger number as the University devises means to facilitate the transfer of qualified students from these colleges.

A table giving comparative numbers of students in the various categories discussed is attached.



3(g)i

Student Housing

Requirements in student housing during the next five years

As students' preference for a variety of self-contained accommodations becomes more evident it is difficult to foresee exactly the mix of housing that should be provided. We have, however, projected a requirement of approximately 1,750 additional single beds, and 250 married student housing units by 1975. It should be noted that the proposed 1,750 single bed requirement would be apartment style and suits the needs of undergraduates and graduates both male and female. The saturation of private housing in the vicinity of the University, the increasing number of married students (both graduate and undergraduate), and the discrimination against students which our surveys of apartment managers indicate, all point to the University's responsibility to provide suitable and economic accommodation. The increasing number of our students from outside the Hamilton metropolitan area plus the fact that many Hamilton students do not have quarters conducive to study further support the housing requirements indicated above.

We are equally concerned that the cost of the housing now available, either on or off campus, is becoming increasingly expensive. Accordingly, not only the housing needs but also the economic capacity of students must be considered in this program.

3(g)ii

How this need has been determined

Our surveys indicate that approximately 30 percent of the total projected student population need to be provided with accommodation. The desirable goal for married students is set at approximately 20 percent of the projected married student population; our goal for single students is approximately 36 percent of their projected numbers. At present we are providing for 26 percent of our single students but we have not yet provided any housing for married students despite a demonstrated need.



3(g)iii

Effects on the University's development if funds are not available to permit housing projects of the indicated scale

With the increased mobility of students, it is obvious that many will decide to enrol in universities where student accommodations are available. We saw evidence of this last year when we had a serious shortage of resident beds and suffered a consequent shortfall in our enrolment. This year an additional 750 beds came into service and our enrolment is above projection. We believe there is and will be a definite relationship between available student housing and enrolment. The effects of this relationship on the University's plans for growth are evident.





## OTHER MATTERS

### 4(a)

#### Mission-Oriented Research

##### Division of Arts

It is reasonably accurate to say that most if not all of the research attracting the attention of members of the Faculty of Business is intended to make a contribution toward the solution of problems challenging the business community. By assisting in the improvement of the operations of the business firm, such research can assist in the material improvement of society. In some instances, management concepts and techniques are applied specifically to non-business institutions, with a view to improving their performance. This is not to say that theoretical considerations are neglected; not infrequently the most theoretical research proves, in its application, to have the greatest practical value.

A sample of research done by members of the Faculty of Business, addressed to the solution of practical problems include the following: Studies in marketing, including the structure of international distribution channels, product design, and pricing; stock reacquisitions by Ontario corporations; applications of price indices and use of current values in the financial reports of corporations; a cost-effectiveness study of adult education; a study of the economic impact of a domestic airport at Mount Hope for Hamilton; negotiations for white collar and service employees; investigation whether the concept of business strategy can be of assistance in articulating a viable strategy in university long-range planning; extensive research in the allocation problem in accounting; measures of effectiveness for health services; and problems of location of economic and business activity.

The line between "curiosity-directed" and "mission-oriented" research in the Social Sciences is most difficult to draw. A distinction may be drawn in terms of funding. One may define mission-oriented research as that which a funding agency (public or private) sponsors or commissions because it seems relevant to the understanding and possible solution of a "practical" problem.





It may well be that the researcher himself is motivated by "curiosity", but the financial support of his project is predicated on the expectation that his work will be useful for dealing with specific and immediate problems. On the other hand, a researcher's interests may seem unrelated to specific, practical problems but his research will, nevertheless, be supported (by a granting agency) on the grounds that it promises to advance the frontiers of knowledge in the area of the agency's interests.

Economists are doing research in a number of areas that focus on problems and issues of current concern. Work is being done on the relationship between economic policy and inflation; fiscal relations between the different levels of government; the economics of water resources policies; economics of education; econometric models of the Canadian economy; and studies of various elements of the labour force.

A major research interest in Political Science is community politics and urban voting behaviour - much of this work is in the form of comparative studies between Canada and the United States. Another aspect of Canadian/American comparative studies is that of political party organization. A number of Political Scientists, whose area of interest is international politics, are doing research in the making of foreign policy and are working on models of international bargaining.

Specific studies are being (or have been) done on the sociological problems connected with urban renewal, particularly in the Hamilton area. Comparative studies in the sociology of occupations in industrial society are underway. One member of the Department is doing intensive work in criminology, with particular emphasis on the sociological factors in the administration of law and on juvenile delinquency. A number of the anthropologists are working on the problem of the urbanization of the Canadian Indian.

A member of the School of Social Work is involved in a major project on the evaluation of violence and dangerous behaviour associated with mental disorder. The problem is one that greatly concerns clinicians, the judiciary and mental health administrators who have to determine, among those designated as mentally ill, whether they need to be detained under special conditions of security, or can be safely transferred to open hospitals, or could be discharged to their homes.



### Division of Health Sciences

Most of the research carried out by both basic science and clinical staff in the Faculty of Medicine is identifiable as "mission-oriented" research. One of the most important and challenging of the missions is evaluation of methods of delivery of health care, and a major effort is already underway in the Faculty using the research resources primarily of the Department of Clinical Epidemiology and Biostatistics. In the Faculty of Medicine a deliberate effort is being made to avoid separation of "curiosity-directed" research and "mission-oriented" research. It is felt that a close geographic and functional relationship will lead to a constructive interaction. The scientists engaged in "mission-oriented" research will tend to become ineffective and their techniques of investigation obsolete unless sustained and renewed by contact with scientists with more time to explore the frontier of knowledge. Similarly, exposure to health problems should prove to be a stimulus to the type of research done by those not directly heavily weighted in favour of "mission-oriented" research in the Faculty of Medicine and the quality and innovation in this research may be jeopardized unless there is a reasonable balance with "curiosity-directed" research.

Major areas of mission research now under way include the following:

The program in Clinical Epidemiology and Biostatistics is concerned with the design, measurement and evaluation of existing and proposed patterns of delivery of health care including different approaches to the utilization of health manpower and regional planning.

The Growth and Development program is concerned with the relationship of chromosome abnormalities to congenital deformities and defective development, the teratogenic effects of antibodies and the neurobehavioural influences on human development particularly in children.

In the cardiovascular field, efforts are directed at assessing risk factors involved in the development of coronary artery disease, blood lipids and dietary restriction in coronary artery disease and thrombo-embolic disorders. Linked to these clinically oriented investigations are basic studies of the effects of injury on blood components and vessel wall and the relationship of these processes to atherosclerosis.





The program in Nuclear Medicine is concerned with the use of radioisotopes in the study and diagnosis of human disease and in the preparation of radio pharmaceuticals for experimental and clinical use. It relies on the unique resources in Nuclear Sciences already on campus.

Work in progress in Immunology is concerned with the effect of environmental factors in the development of sensitization of workers exposed to airborne stimuli, the effects of immunological reactions in the lung to the development of pulmonary disease and the relationship of virus infections to clinical disorders. Once again these clinical investigations are based on fundamental studies of the nature of immunological reactions including the behaviour of the lymphocyte and the characteristics of immunoglobulins.



### Division of Science and Engineering

Research activities of members of the Division of Science and Engineering range from the application of existing knowledge to the solution of short-term practical problems at the request of an industrial sponsor or government agency to the probing of fundamental questions for the sake of advancing knowledge. Projects in the former category are often unsuitable for graduate theses since they generally involve firm deadlines and the results, for proprietary or other reasons, may not be freely published. Work of this nature normally is undertaken under a contract arrangement through the Centre for Applied Research and Engineering Design Incorporated (CARED) which has been established under the sponsorship of the Department of Industry, Trade and Commerce of the Federal Government. This Centre provides a vehicle whereby faculty members may apply their special expertise to the solution of problems of immediate economic or social significance. Since its inception three years ago, CARED has undertaken contract research amounting to approximately \$500,000. (A list of projects and their sponsorship is attached.)

Another category of project fitting the definition of mission-oriented research is supported by industry or government agencies such as the Federal Department of Energy, Mines and Resources, and the Ontario Department of Treasury and Economics, usually in the form of a grant-in-aid. These projects, although usually of a fundamental nature, have as their objective the solution of problems of direct interest to the sponsoring agency. From the point of view of the sponsor they are 'mission-oriented' although individual investigators may be motivated by 'curiosity'. For the Faculty of Science for 1970-71, grants or contracts in this category amount to \$128,000 (6% of the total) and in the Faculty of Engineering \$230,000 (21% of the total). (A list of these projects with the sponsoring agency is attached.)

Although we have been instructed by DUA not to include within the 'mission-oriented' category projects supported by the National Research Council and the Defence Research Board, it should be pointed out that many programs supported by these agencies are distinctly 'applied' in nature, particularly those involving members of the Engineering Faculty. Although it is difficult to draw a sharp distinction between such projects and those which have as their sole objective the answering of fundamental questions for the sake





of advancing knowledge, an examination of the projects supported by NRC and DRB shows that in the Faculty of Science grants amounting to \$200,000 (10% of the total) and in the Engineering Faculty amounting to \$500,000 (46% of the total) have a definite mission orientation.

Although the policy of the Science and Engineering Division is to give active encouragement to our faculty to undertake research having a socio-economic relevance, we continue to believe that our main mission in the realm of research is to tackle problems of fundamental significance. Our key criterion for active university support is that the work be of high quality. We recognize, however, that the University has in its faculty an extremely valuable resource which must increasingly be directed to the solution of problems of national relevance. The establishment of an industrial research institute (CARED) provides an efficient mechanism whereby this objective can be realized.



Table I

RESEARCH PROJECTS CARRIED OUT UNDER THE AUSPICES OFC. A. R. E. D.

| <u>PROJECT TITLE</u>  | <u>CLIENT OR SPONSOR</u>  |
|---|---------------------------|
| Hydrogen ammonia process<br>Simulation (1)  | Federal Government Agency |
| Hydrogen ammonia process<br>Simulation (2)  | Federal Government Agency |
| Welding course  | Industry                  |
| Noise spectrum measurement  | Industry                  |
| Airframe manufacture survey   | Industry                  |
| Space and facilities program  | Institution               |
| Niagara Region Survey: A sub-<br>contract relating to regional<br>industrial development. | Industry                  |
| Report on automatic slush<br>molding installation   | Industry                  |
| Reduction of fibre content<br>of rapeseed meal  | Industry                  |
| Design of optimal heat<br>exchange configuration  | Federal Government Agency |
| Development of multiscreen<br>process   | Industry                  |
| Air flow study for the air<br>cooling of wire   | Industry                  |
| Request to obtain a monostable<br>fluidic element   | Industry                  |



| <u>PROJECT TITLE</u>   | <u>CLIENT OR SPONSOR</u>  |
|--|---------------------------|
| Specification of the suspension for a lightweight high speed railway passenger car   | Industry                  |
| The development of programs to cover processing of data from the Great Lakes   | Federal Government Agency |
| Flexural tests and analysis on gypsum specimens  | Industry                  |
| Development of mathematical models to provide basis for predicting polyolefin molecular weights, distribution and polymerization rates | Industry                  |
| To provide a working simulation of Bayer process for extracting alumina from bauxite ore   | Industry                  |
| Push-out tests on steel members in concrete slabs  | Industry                  |
| Spectrum management: A study of the assessment of radio frequencies in federal communications  | Federal Government        |
| Inventory: An examination of special instrumentation for water quality assessment  | Federal Government Agency |
| Airport survey   | City Government           |
| Building vibration survey and analysis   | Industry                  |
| Foam form block system in construction   | Industry                  |



YEAR I "NON-SECONDARY SCHOOL" REGISTRATION

NUMBER

| Course                              | Special Students |      |      | Ontario Non-Grade 13 |      |      | C.A.A.T. |      |      | Other Provinces |      |      | Foreign |      |      |
|-------------------------------------|------------------|------|------|----------------------|------|------|----------|------|------|-----------------|------|------|---------|------|------|
|                                     | 1968             | 1969 | 1970 | 1968                 | 1969 | 1970 | 1968     | 1969 | 1970 | 1968            | 1969 | 1970 | 1968    | 1969 | 1970 |
| Engineering I                       | --               | --   | --   | 7                    | 6    | 3    | 5        | 2    | 1    | 1               | --   | 5    | 45      | 41   | 46   |
| Humanities                          | 16               | 17   | 35   | 24                   | 17   | 25   | --       | --   | 1    | 4               | 3    | 10   | 18      | 22   | 16   |
| Natural Sciences I                  | 1                | 2    | 3    | 8                    | 7    | 11   | 1        | --   | --   | 1               | 4    | 5    | 32      | 40   | 36   |
| Nursing I                           | --               | --   | --   | --                   | 2    | 2    | --       | --   | --   | --              | 1    | --   | --      | --   | 1    |
| Social Sciences I<br>and Business I | 67               | 64   | 82   | 32                   | 46   | 84   | 4        | 9    | 9    | 3               | 6    | 23   | 39      | 41   | 40   |
|                                     | 84               | 83   | 120  | 71                   | 78   | 125  | 10       | 11   | 11   | 9               | 14   | 43   | 134     | 144  | 139  |





3(e)iv

Changing student preference

Since the separation of the Faculty of Arts into three separate Faculties - Humanities, Social Sciences, and Business, the largest increase in enrolment has been in the Social Sciences. This year there has also been a significant increase in Year I Humanities enrolment amounting to 30%.

Honours course enrolment in all Faculties remains fairly constant except for a decline in double Honours programs in the Faculty of Humanities. Student enrolment figures suggest a marked interest in the combined programs -B.A./B.P.E. and B.A./B.S.W. The double ingredient of a liberal arts program and a professional element has a strong appeal. Because the combined programs are comprised of a full pass program to which is added the element of professional training, they should properly be regarded not as alternatives but as extensions to the pass programs. Increases in the Social Sciences have been greatest in Sociology and Anthropology, and Psychology. In the Science and Engineering Faculties, Biology and Engineering Physics respectively have attracted strong student interest. Increases in Year I intake in the Faculty of Science and the Faculty of Engineering continue at modest levels.



3(e)v

Changing patterns of job opportunities

During the past two years there has been a noticeable drop in the demand for liberal arts graduates by employers recruiting at McMaster. Economics, Commerce and M. B. A. graduates on the other hand, have received increasing attention.

Engineering and Science graduates at the Bachelor's level have been, and still are, in good demand. On the other hand, job opportunities for Master's and Ph. D. candidates have decreased during the past two years.

The advent of the new technological colleges has had an effect on the hiring of university graduates. Many employers are now hiring engineering technologists, whereas in the past they would hire graduate engineers. Others are hiring graduates of the Technological Business Administration course, whereas in the past they would have hired graduates of a Faculty of Business from the university level.

The total employment picture at present suggests that there is an ever-increasing number of university and technological graduates but a slackening demand in industry and business for these graduates. Concomitantly, there appears to be an increasing demand for persons with education of one or several years beyond the Bachelor's degree, and this constitutes a pressure for increase in the size of graduate schools. At the same time, some of the traditional programs are not entirely appropriate for the career goals of these students, and employment opportunities in some of the traditional fields are not as extensive as might have been thought three or four years ago.

At McMaster we have taken some steps to provide more career-directed programs, and we have others under discussion. We have just begun a Master's program in Production Engineering; our Electrical Engineering Department is stressing work in communications; we have a considerable program in Water Resources and Treatment; the Chemistry Department has inaugurated an undergraduate program in Applied Chemistry; and the Engineering Physics Department has this fall begun a Master's program of an innovative kind, designed to



produce a graduate with the ability to adapt to a variety of industrial situations.

Perhaps the Engineering Physics program will be a forerunner of other programs in Engineering, designed to give a man a 2-or 3-year graduate experience appropriate to industrial employment in research and development.

McMaster's method of organizing graduate work in Medical Science by broad research areas rather than by departments is a response to the changing pattern of research activity in that field.

Special programs, at the Master's level, for teachers are being considered.

In the traditional disciplines and programs, most professors recognize that their future graduates may be facing different employment situations than their predecessors. A number of us are giving thought to the need to broaden the training of a Ph.D. student, to make him better prepared for a variety of opportunities on graduation. It has been traditional to insist on a "minor" subject in his course program. Some professors ask if this should not become a much more substantial engagement of the student's attention, and perhaps be rather further removed from his major field than it often is.

It is widely asserted that Canada's graduate schools are about to produce too many Ph.D.'s in some fields, in relation to short-term employment opportunities. In reply, attention is usually drawn to the notorious unreliability of projections in the very difficult field of manpower needs and also to the flexibility and entrepreneurship of bright young people. Quite apart from these two obvious comments, we stress the importance of avoiding precipitate action in this area because of possible undesirable distortion of the distribution of competence amongst and within the different fields of science and social science in Canada. Excessive governmental guidance through the control of funds for graduate education in the light of prospective needs for trained manpower poses two sorts of danger. The first is that narrowly-trained specialists should turn out to be trained for the wrong function and be unable to adapt to changing needs because of function-oriented training. The second danger is that governmental concern with manpower training should lead to undue preoccupation with the specific content of what is taught. The vitality and value of





Canadian graduate education would be adversely affected by either of these developments. In our enthusiasm to direct our research efforts more toward the tackling of national problems we should not forget that the reason we can even consider mustering any research potential for this task is that we have in the past two decades recognized the importance of establishing a strong cadre of fundamental researchers, some of whom can now turn their efforts to mission-oriented research. Our ability to make outstanding contributions to the technological effort in World War II was related to the reservoir of broadly-trained research personnel in every facet of science which existed in the Canadian universities and in the government and industrial laboratories. We believe that graduate education, including participation in basic research, is the best contribution that universities can make to providing fully qualified researchers and scholars. If this is acknowledged, then governments should recognize that the resources provided to the universities for graduate education and research are effectively and efficiently used.

Of course, there is another sense in which the changing pattern of job opportunities affects planning, viz. the shift in major fields. For example, we anticipate fairly rapid growth in graduate work here in Social Sciences, in Life Sciences, and in Mathematical Sciences, with sustained but less rapid growth in other fields.

These various aspects of the employment market have of course been considered in arriving at our enrolment projection.





3(f)i

Possible effects of increasing demand of student assistance from the limited total resources available for the support of higher education

Last spring a University committee composed of faculty and students prepared a statement on student aid. It is reproduced below but it should be emphasized that the Committee's report has not been discussed by the Senate and therefore cannot be considered to be official University policy. It should be noted that this statement is applicable only to undergraduates and our view on graduate support is expressed under 3(f)ii.

Statement on Ontario Student Aid Program  
Prepared by the McMaster University  
Study Group for the C.P.U.O. Subcommittee on  
Student Aid

The McMaster Study Group discussed the three categories most likely to influence a student's desire to enrol in a university: "ability, motivation and financial resources" (Gail C.A. Cook and David A.A. Stager, Student Financial Assistance Programs, November 1969, p.93). Generally we agreed that the first category is subject to objective criteria and noted that any student in Ontario with proven ability has access to financial support. Subject to a means test, that support can equal the total cost of university education.

The second factor, motivation, would appear to be a major aspect of aid programs (see 'summary' pp. 162-3), but the Study Group sees little chance of overcoming educational hesitancy by means of financial aid to education. Much attention must be given to finding a solution for problems of the poor, the underprivileged, the poorly motivated and the culturally deprived in the general area of education, but such programs should not be tied absolutely to programs of aid to education.

Most important, therefore, are recommendations on the present aid program (OSAP), an appraisal of the proposed CORSAP and suggestions for studies and considerations which should precede any radical adjustment of the assumptions underlying the present system.



## I. Existing Programs

The Study Group feels that the financial resources now provided by OSAP extend sufficient support for most students to fulfil their expectations through three or four years of university. The chief difficulties with the present aid program appear to be in the area of minor adjustments in the means schedules which would help to make the system more equitable for all students. Accordingly the Study Group forwards the following specific recommendations:

- a) a greater allowance should be given for dependent children
- b) the basic allowance for parents should be increased
- c) a greater allowance should be made for working mothers - \$250 is inadequate
- d) the parental contributions table needs further revision to improve the aid provided for the children of families in the \$6, 000 to \$10, 000 income bracket (see p. 108)
- e) allowances for summer savings should be increased
- f) increased loans above the \$600 maximum should be more readily available
- g) the grant-loan distribution should be restructured in such a way that the grant portion of a student award is greater in the first and second year of university than in the third and fourth years. Although the student's total award over the four years may not differ from that under the present OSAP scheme, the initial award will be more grant than loan, while later awards will be more loan than grant.

This may attract students to the university who were previously undecided, and would tend to provide provincial grants during the stage in a student's education when a greater percentage of returns are 'social' in nature.

- h) some shift in emphasis from grants to loans would make considerably more money available to students without substantially increasing the total amount contributed by the Province of Ontario (see p. 73, table II.8).



## II. The Cook-Stager Report

Generally speaking, the Study Group appreciates and approves of the Contingent Repayment Student Assistance Program (CORSAP) described in Section VI. 1 of the Cook-Stager report. The following comments and suggestions are intended for consideration within the general scheme of CORSAP.

It must be recognized that the prime reasons for education are:

- a) up-grading or increasing the individual's lifetime earnings;
- b) increasing personal knowledge and awareness, including service to society; and
- c) benefiting the society at large.

Even though a student who chooses to go to university gives up several years' income and expends some of his human capital, it must be assumed that 'a' and 'b' are primarily the responsibility of the individual. The benefits of 'c' may be considered largely the responsibility of society and, therefore, the chief rationale for government subsidy to education. In addition it may be assumed that the first year of university promotes 'c' to a greater extent than 'a' or 'b', and that a fourth year of undergraduate work (or M.A. or Ph.D. residence, for that matter) primarily promotes 'a'. Presumably, therefore, 'a' and 'b' should be supported by loans, while 'c' may be justified under a grant program.

The Study Group recommends, therefore, that the CORSAP proposal be adjusted to reflect a gradual increase in the student's upgrading so that while the first year of university is primarily grant, the loan burden is gradually increased (repeaters are entitled only to loan assistance). By graduation the student is borrowing all of the money necessary to maintain him at the university. This would provide a gradual transition from the grant assumptions prevailing in the elementary and secondary schools and also provide a structure which would attract students who because of sociological or cultural factors are reluctant to borrow even the \$150 now required in order to benefit from OSAP.

The Study Group is not unaware of the serious implications of such a program for graduate studies, if the principle of upgrading were applied to graduate studies as is proposed for undergraduate, even though the present report is focused on undergraduate education.





Many of the financial implications are mitigated by the fact that most graduate students are 'employed' by the universities where they study, but it should be recognized that the radical change proposed in CORSAP should also give rise to an examination of the finances of graduate education.

### III. Future Studies

The Cook-Stager report is narrowly financial in its assessment of higher education in Ontario and considerable investigation should preface any such radical proposal as that suggested by CORSAP. For example, we should study very carefully any attempt to direct and release the talent and energy of youth by saddling almost the entire student capital with a considerable, and perhaps even permanent, debt. Some extensive studies on student motivation should be undertaken, especially concerning the relative merits of grants and loans. It may be that CORSAP is economically feasible, but if student response declines substantially, nothing will have been achieved. There is already a great deal of disenchantment with university structures in many student quarters and the burden of a loan would probably serve to intensify such feelings whether they are justified or not.

The relationship between extensive student self-financing and student involvement in educational decisions should be carefully investigated. The Cook-Stager report, for example, proposes a method of financing the 'exploding' costs of education. No attention is given to stopping the 'explosion', but the role of students in such decisions should be considered.

If operating expenses and a proportion of capital expenditures are to be paid out of student tuition on a more or less actual cost basis, the future relationship between professor and student should be carefully considered. Moreover, many students view the plan primarily as a scheme to raise tuition. The nature of education in a system where almost every student is concerned with paying back a large loan to the government may not be conducive to the depth, excitement and preparation for leisure which one hopes future Canadians will desire for themselves and their children.





| <u>PROJECT TITLE</u>  | <u>CLIENT OR SPONSOR</u> |
|---|--------------------------|
| Foam form skin system<br>in construction  | Industry                 |
| Residual stresses in<br>structural sections   | Industry                 |
| Fuel cell research  | Industry                 |
| Benfield project: A study<br>in industrial catalysis  | Industry                 |
| Multiscreen camera  | Industry                 |
| White Farm Equipment Company:<br>A performance assessment of<br>agricultural screening euipment | Industry                 |
| Arcan Eastern: A performance<br>study of industrial racks of a<br>new design                    | Industry                 |
| Waste utilization   | Industry                 |
| Design management course  | Federal Government       |
| Thompson Gordon project:<br>A performance analysis of<br>nylon bearings                         | Industry                 |
| Geological survey   | Foreign Government       |



MISSION-ORIENTED RESEARCH IN THE FACULTY OF SCIENCE  
SUPPORTED BY INDUSTRY AND GOVERNMENT AGENCIES  
OTHER THAN NRC AND DRB

CHEMISTRY

|  |  |
|--|--|
| Science concept learning                         | Department of University Affairs                       |
| Trace metals in organic<br>brain disease         | Ontario Mental Health Foundation                       |
| Studies on inhibition of<br>scale formation      | Department of Energy, Mines and<br>Resources           |
| Photoaddition reactions of<br>aromatic compounds | Industry   |
| Mass spectrometer research                       | Atomic Energy of Canada Limited                        |
| Sulphur isotope geochemistry                     | Geological Survey of Canada                            |
| Sulphur isotope studies of oil                   | American Chemical Society -<br>Petroleum Research Fund |
| Ultrasonics                                      | Industry   |
| Synthesis of a perfluoro<br>polyester            | Industry   |

GEOGRAPHY

|   |  |
|---|--|
| Short term measurements of<br>solar radiation | Department of Energy, Mines and<br>Resources |
| A design for rural land-use                   | Department of Treasury and Economics         |
| Radiation balance over urban                  | Ministry of Transport                        |

cont'd...



GEOLOGY

Trace element geochemistry  
of Elliot Lake uranium ores

Geological Survey of Canada

Chemical-biological investi-  
gations in fresh water

Department of Energy, Mines  
and Resources

PSYCHOLOGY

Operant conditioning of auto-  
nomic and central nervous  
system responses

Ontario Mental Health Foundation

Direct control of neutral  
processes by reward and  
punishment

Foundations' Fund for Research  
in Psychiatry

Mechanisms of autonomic con-  
ditioning

Ontario Mental Health Foundation

Proportion of total dollar value 6%

Proportion of total projects 9%



MISSION-ORIENTED RESEARCH IN THE FACULTY OF ENGINEERING  
SUPPORTED BY INDUSTRY AND GOVERNMENT AGENCIES  
OTHER THAN NRC AND DRB

CHEMICAL ENGINEERING

|  |   |
|--|---|
| Pulsed flow of high density slurries                                       | Department of Energy, Mines and Resources |
| The effect of reaction parameters on polymer molecular weight distribution | Industry                                  |
| Refractory erosion of molten iron alloys                                   | Industry                                  |
| Reactor kinetics and fluid flow problems of catalytic reactors             | Industry                                  |
| Separation of immiscible liquids   | Industry                                  |

CIVIL ENGINEERING

|  |  |
|--|--|
| Experimental testing program on real buildings in order to evaluate the hazard of collapse   | Canada Emergency Measures Organization |
| Evaluate the static and dynamic strength of characteristics of concrete shear wall buildings | Canada Emergency Measures Organization |
| The development of behavioural, multiple choice models of travel mode choice                 | Department of University Affairs       |

Cont'd...





ENGINEERING PHYSICS

|  |                                 |
|--|---------------------------------|
| Construction of a low-energy ion reflection spectrometer                                 | Industry                        |
| Direct energy conversion using semiconductor p-n junctions                               | Atomic Energy of Canada Limited |
| Radiation study  | Industry                        |
| Investigations on the interface problem between nichrome and various conductor materials | Industry                        |
| Ellipsometric studies  | Industry                        |

MECHANICAL ENGINEERING

|                        |   |
|------------------------|---|
| Humane trap evaluation | Canadian Federation of Humane Societies |
|------------------------|---|

METALLURGY & MATERIALS SCIENCE

|   |                             |
|---|-----------------------------|
| The behaviour of precipitation hardened structural steels under cyclic loading conditions | Industry                    |
| Fabricating one copper crucible   | Industry                    |
| Electro slag remelting of nickel  | Industry                    |
| Experimental measurements   | Industry                    |
| Studies on metamictization in minerals  | Geological Survey of Canada |
| Constitution of nickel sulphur  | Industry                    |

cont'd...



|   |                                 |
|---|---------------------------------|
| A study of multicomponent diffusion in steels   | Industry                        |
| 1. Phase transformation in ternary ferrous systems  |                                 |
| 2. Diffusional instabilities in ternary ferrous systems   |                                 |
| Research program  | Industry                        |
| Surface tension measurements  | Industry                        |
| Spray refining  | Industry                        |
| Investigation into the possible utilization of partially stabilized zirconia as a structural material in nuclear reactors | Atomic Energy of Canada Limited |
| The solidification of steels  | Industry                        |
| <u>ELECTRICAL ENGINEERING</u>   |                                 |
| Design study of a high speed digital MTI filter.  | Industry                        |
| Proportion of total dollar value  | 21%                             |
| Proportion of total projects  | 25%                             |



4(b)

Policy on the obligations of individual faculty members

With the exception of members of the Faculty of Medicine, faculty are not under a contractual obligation to spend the summer months on the campus, although a majority now do. In the Faculties of Science and Engineering essentially every member devotes the summer period to full-time on-campus research and instruction involving graduate students. Occasionally, one or two faculty members in Engineering will spend a summer in industry, an arrangement that we try to encourage. Faculty members in Arts have always been expected to use the summer months for their continuing development as teachers and scholars. In the past, some have worked at McMaster and others have gone to areas most appropriate for their study and research, such as major libraries, government centres, or areas relevant to their field work. Until recently, many younger faculty members were still working on their doctoral dissertations during the summer. A strengthening of staff in recent years in Arts has meant that more faculty now are working on their own research. With the rapid development of graduate studies in this area and particularly with the introduction of Ph.D. programs, an increasing number of the Arts faculty now remain on campus throughout the summer giving graduate courses and supervising student theses.

For almost twenty years, the University has provided an extra stipend to faculty who engage in on-campus research. This is not automatic, however, and faculty are required each year to make application and to present a progress report at the end of the summer. The absolute value of the individual stipend has not increased during this period and a stipend now amounts on the average to 6-7 percent of the recipient faculty member's total University income. For almost twenty years the University has provided stipends for Science and Engineering. Summer stipends for Arts faculty have been available only since 1966, coinciding generally with the expansion of graduate work. Many faculty receive outside grants and a number teach summer classes.

University faculty are permitted to undertake private consulting to a maximum of twenty days per academic year. In practice, it is exceptional for a faculty member to even approach this limit and, indeed, very few faculty consult more than ten days per year. A large majority undertake no consulting work at all.





4(e)

Foreign Graduate Students

During the last year further restrictions have been introduced by the normal granting agencies on the support of foreign graduate students. Canadian citizenship or landed immigrant status is now required in order to obtain support from the Ontario Graduate Fellowship Program, the Canada Council Predoctoral Program, the National Research Council Scholarship and Bursary Program, or from the National Research Council, research grants. This means that for all practical purposes there are only two sources of support for foreign students. They may be supported as Teaching Assistants or a few may be on one of the various plans administered by the Canadian International Development Agency. Since the latter agency is restricted to underdeveloped countries, there is essentially no way to support students from Europe, the U.S., Australia, except as Teaching Assistants. This situation is dangerous to the health and quality of our graduate schools.

There is no doubt that a graduate school worthy of the name will have a significant proportion of foreign students. It is difficult to find a study in which the desirable fraction has been determined but anywhere between 10% and 20% is generally considered healthy. We, at McMaster, recognize that Canada feels a responsibility to assist developing countries through the education of their young citizens, but it is not this type of foreign student of whom we speak. We are concerned rather with the student whose presence is to our own advantage in maintaining our position in the field of international scholarship, in ensuring that our own graduate students interact with those of other cultures. It seems to us that to the extent that the Provincial Government has a responsibility for education, it becomes a responsibility of that Government to make provision for this type of student.

It will be realized that it is only the foreign student of high academic standing for whom we are making this plea. We suggest that there should be a quota for foreign students included in all scholarship programs. We believe that representations to this effect should be made to the Canada Council and the National Research Council. We urge, at this time, that the Ontario Graduate Fellowship Program for 1971-72 should include foreign students either at a fixed numerical quota, say 15%, or at a level of academic achievement (e.g. first class). In accordance with our thesis that we are looking for academic





quality in this group of students, we would not be adverse to the foreign quota being awarded by Province-wide competition rather than as a part of the separate University quotas.









